Doctoral Dissertation

Risk Behavior among Adolescents in Nepal

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Abstract

Introduction: Adolescence is an important formative phase of life during which many behavioral patterns are initiated and established, providing a valuable base for a positive, productive, successful and healthy adult life. Personal characteristics and a range of environmental factors make adolescents vulnerable to risky behaviors, which can lead to various negative consequences for health and overall aspects of life. Adolescents in the South East Asia Region (SEAR) have the highest prevalence of tobacco use, the second highest birth rate, and the highest suicide rate in the world (8.7 per 100,000). Recently, the World Health Organization conducted a global school-based student health survey in the SEAR, and its 2017 report revealed the prevalence of various problems among Nepalese adolescents, providing the first national level study of risky behavior among Nepalese adolescents. The survey indicated that a significant proportion of the adolescent population use substances, are sexually active, and have the highest prevalence of suicidal ideation and suicide attempts among the SEAR countries. Biological and environmental factors function together, and several social contexts, including family, peers, and school, influence adolescent development. Although self-esteem, perceived social support (PSS), and social capital (SC) are important concepts affecting adolescents' risky behavior, few studies have examined this issue in developing countries, and none have been conducted in Nepal.

Objectives: The first objective of this study was to identify the roles of self-esteem, three sources of PSS (family, friends, and significant others), and SC (family, school, and neighborhood) in adolescents' substance-use, suicidal behavior and sexual behavior. In addition, parents can play an important role in enhancing protective factors and preventing adolescents from exhibiting risky behaviors. However, parenting and suicidal risk behavior have been minimally studied, with a small number of previous studies on self-esteem and parenting producing variable results. To the best of our knowledge, no previous studies in Nepal have examined parenting and mental health outcomes among adolescents (i.e., self-esteem and suicidal behavior). Therefore, the second objective of this study was to assess the association between parents' knowledge of adolescents' self-esteem and their parenting (practice and style), and to examine the effects of parenting on adolescents' self-esteem and suicidal behavior.

Methods: The Cross-sectional study was conducted among 13–19-year-old Nepalese adolescents studying in classes 9–11 (*n = 943*) and either of their parent (n=575). A multistage cluster random sampling technique was used to select participants from eight higher secondary schools (four private and four public) in three provinces of Nepal. Data were collected with self-administered questionnaires and the response rate from adolescents and parents was 92% and 63% respectively. Data was analyzed

in SPSS version 26 with descriptive and inferential statistics (bivariate and multivariate linear and logistic regression analysis) at <0.05 level of significance and 95% confidence interval.
Results: Adolescents with higher levels of support from family and higher family SC were less likely to use substances. Adolescents with higher self-esteem, higher levels of support from family and friends, and higher family and school SC were significantly less likely to exhibit suicidal behavior. However, self-esteem was positively associated with sexual behavior, and peers had a consistent positive influence on substance use and sexual behavior. Although self-esteem was found to be a strong protective factor against suicidal behavior, 29.8% Nepalese adolescents were found to have low self-esteem. The linear and logistic regression analysis of cross-sectional data from pairs of adolescents and either of their parents revealed significant positive associations between scores reflecting parents' knowledge about self-esteem in adolescents and scores reflecting their parenting practice (communication, support, and positive-reinforcement), and authoritative parenting. Importantly, authoritative parenting was positively associated with adolescents' self-esteem. In contrast, adolescents with authoritarian parents were prone to suicidal risk. Homemaker mothers and parents from Province 5 were more likely to be authoritative, whereas parents from low SES families were less likely to be authoritative.
Conclusion: The current study expanded our understanding of how self-esteem and different sources of PSS and SC influence different risky behaviors, indicating that some previously observed associations were the consequences of unmeasured confounding by controlling for several contextual factors, such as demographics, SES, family, school, and peer relationships. In addition, parental knowledge was found to have beneficial effects on parenting, suggesting that parents can contribute to adolescents' self-esteem through authoritative parenting, and that suicide can be prevented by reducing authoritarian parenting.
Implications: These findings might have important practical and educational implications for health workers, including school/community health nurses, teachers, families, communities and others who work in adolescent health and development. Interventions such as assessment of self-esteem, counseling for peer selection, and raising awareness of risky behavior can be performed at the adolescent and school-peer levels. Focusing on PSS and SC at school and in the family, and monitoring peer influence among adolescents, are also important. On the basis of the current findings, knowledge-based interventions, parenting training, and counseling of parents should be undertaken. Overall, this is the first study of its kind in Nepal, and the current findings have important implications for positively impacting Nepalese adolescent development.

Contents

Chapter I, Introduction

1. Possible Factors that Affect Risk Behaviors in Adolescents

The Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) have focused on the preventable but most prevalent global problems of substance-use, sexual behavior, and suicide-related behavior, among others, as risk-behaviors for adolescents, mostly in low- and middle-income countries (LMICs) that might be vulnerable to longer lasting effects on health and social functioning (Kann et al., 2018; CDC, 2018; WHO, 2017, 2018, 2018a). According to the WHO, at least 1 in 10 adolescents 13–15 years of age uses tobacco, 11% of all births worldwide are due to teenage pregnancy, i.e. 46 births/1000 to girls in the 15–19 years age range mostly in LMICs (WHO, 2018b; Pan American Health Organization [PAHO], 2018). Suicide is the third most common cause of morbidity and disability among adolescents worldwide, and the majority (90%) of adolescent deaths by suicide have occurred in the LMICs (WHO, 2019). In the South East Asia Region (SEAR) suicide is the leading cause of youth and adolescents' death with high cause specific mortality (WHO, 2017a , 2020). Most notably, almost half of the adolescents' deaths due to self-harm worldwide took place in the LMICs of SEAR because SEAR has world's highest rate of adolescents' self-harm (WHO, 2017a).

A recent survey among teens aged 13–17 years old in SEAR projected that Nepal had the highest frequency of suicidal ideation (14%), a behavior that is the greatest risk for committing suicide, and high number of suicide attempts (10%) amongst the nations of SEAR (WHO, 2017). The survey also showed that 10% of students in Nepal used substances. Furthermore, 17% of adolescents aged 15–19 years were already mothers or pregnant, and one in five women gave birth by age 18 years, 21% adolescents ever had sexual intercourse, and men initiated sexual activity 1.2 years before marriage at age 20 (Aryal et al., 2017; Ministry of Health and Population [MoHP], 2017).

Establishing healthy behaviors during childhood and adolescence is more effective and easier than trying to change behavior in adulthood (Aryal et al., 2017). Promoting health and behavior of young persons is also important to the success of the 2030 agenda for Sustainable Development (World Bank, 2019). Despite rising aspirations, very little has been done in the area of youth development in Nepal

(Ministry of Population and Environment [MoPE], 2017). Though we have become aware of the extent of this problem only recently, to the best of our knowledge, there is no study in Nepal that focused on possible preventive factors for these risk behaviors.

An adolescent's behavior is determined not only by individual traits but is also influenced by multiple factors within a social context (United Nations Office on Drugs and Crime: UNODC, 2018; Jessor, 2014; WHO, 2014; Spear, 2013; Currie et al., 2009). Furthermore, the adolescent's brain is sensitive to social influence, and whether they have a positive or negative perception from relationships with family, caregivers, and peers influences their behavior and the outcome (Schriber & Guyer, 2016; Nguyen, 2015; Steinberg, 2005, 2008; Smith et al., 2013, Li et al., 2017). Self-esteem, perceived social support (PSS), and social capital (SC) are the important concepts related to adolescents' psychological and social environmental system, that might affect adolescents' risk behavior, however, there is scarcity of study in developing countries in this topic. Rosenberg (1965) defines self-esteem as an individual's overall evaluation of self; if one has more positive feelings or considers oneself as worthy, self-esteem will be higher. A study based on Problem Behavior Theory identified low self-esteem as one of the risk factors for substance-use (Karaman, 2013), and several studies have generated an understanding that, low self-esteem leads to concurrent and future negative outcomes. For example, adolescents with low self-esteem are at risk for depression at present and in their adulthood (Jayanthi, 2014; Masselink et al., 2018; Orth et al., 2008), delinquency and academic problems (Rosenberg, 1989), and long-term unemployment, poor health, economic problems and criminal behavior in adulthood (Trzesniewski et al., 2006). Similarly, studies have also demonstrated that adolescents with low self-esteem were at risk of suicide (Kleiman & Riskind, 2013; Huang et al., 2017; Sharaf, 2009), substance use (Handren et al., 2016; Chen et al., 2018; Karaman, 2013), and risky sexual behaviors (Enejoh et al., 2016; Kerpelman et al., 2016). However, there remains a lack of data on the association of self-esteem with those risk-behaviors along with other socio-contextual factors in Nepal.

On the other hand, studies based on ecological theory showed social support from family and teachers had a protective effect on adolescent risk behaviors,

although a mixed influence from neighbors and other adults, was revealed (Sharaf et al., 2009; Kleiman & Riskind, 2013; Kang et al., 2017; Reininger et al., 2012). Another concept, social capital (SC), a theory established in sociology by renowned theorists, promoted the importance of social features (family, neighborhood, school, and similar human organizations), individual networks, relationships, norms, cohesion, and trust (Kawachi & Berkman, 2000; Tzanakis, 2013). Studies in different parts of the world have indicated that SC can impact health behaviors and developmental trajectories, and are associated with better mental health and educational outcome in adolescents (Kawachi & Berkman, 2001; Rothon et al., 2012), however, this concept is least used in understanding adolescents' risk behaviors and almost not used in developing countries, therefore, studies in different sociocultural and economic contexts are needed because the influence of SC might be different in different contexts (Kaljee & Chen, 2011; McPherson et al., 2013). Nepalese surveys demonstrated differences in the prevalence of substance use and suicidal behavior by some demographic, parental occupation, and peer factors (Kabir & Goh, 2014; Karki et al., 2016; Thapa et al., 2017). Therefore, three different sources of SC and perceived social support (PSS) was evaluated in this study to determine their association with three risk behaviors of adolescents in diverse ethnic, cultural, religious, and socioeconomic contexts.

Furthermore in the context of Nepal, a study on health and social vulnerability of adolescents showed that Nepalese adolescents were vulnerable to various issues like child marriage, school dropout (mainly due to poverty, conflict, substance use), lack of health services, and psychosocial problems (Adhikari et al., 2016). Although Nepal has made impressive progress in life expectancy, maternal and child health, and reduction of infectious diseases including HIV and TB during the last two decades, a promotive and preventive focus on adolescent health and behavior is still far from being achieved. Many youth mental health problems seem to be hidden and under-assessed because adolescents have traditionally been ignored by public sector programs and budgets (UNICEF, 2019; MoPE, 2017; MoHP, 2015). Therefore, studies need to be conducted in different contexts to make preventive interventions more specific and effective (WHO, 2020a, 2020b).

2. Adolescents' Self-esteem and Parents

Adolescence is a unique developmental period of life marked by the transition from childhood to adulthood in which adolescents have to adjust to various changes and challenges, and this might make adolescents prone to various psychosocial problems (Collins & Steinberg, 2008; Harter, 2008; Lerner & Steinberg, 2009; Potts & Mandleco, 2011; WHO, 2020b). Good psychosocial health in adolescence includes having a positive sense of identity and self-worth (WHO, 2017a). In this regard, self-esteem is an important aspect of mental health and it is believed to be one of the predictive factors for the psychological well-being of adolescents in their unique period of identity development (Rosenberg et al., 1995; Akdemir et al., 2016; Huang et al., 2015; Du et al., 2017). Therefore, healthy development with higher self-esteem during childhood and adolescence would lead to healthy and productive adulthood.

Nepal is a country in SEAR, with low income, overall literacy rate of 67%, and agriculture as the major occupation. Almost 24% of its total population are adolescents of 10–19 years old (Central Bureau of Statistics, 2014), and a previous study found that a significant number of Nepalese adolescents (24%) have low self-esteem (Lamichhane, 2015). Parents can contribute on development or enhancement of adolescents' self-esteem because parenting does matter, and parents can have an influence on their children, both by genetic makeup and by the way they treat their children (Maccoby, 2000; Bornstein, 2002; Donath et al., 2014), but to our knowledge, there has been no study in Nepal that tried to identify how parents can enhance this important protective factor in their adolescent children.

How an adolescent perceives him or herself is presumably based on his/her interaction with others and the interpretation of others, and the starting point of this process is the relationship between the mother/parents and child, followed by peer and other social relationships (Collins & Steinberg, 2008; Harter, 2008; Lerner & Steinberg, 2009; Cooley, 1998; Mead, 1934). Bronfenbrenner's ecological systems theory also emphasized the influence of multiple environmental factors on the adolescent's development, and further placed emphasis on the importance of parents and family through the bioecological model of human development (Bronfenbrenner, 1979, 1986, 2007). Therefore, in keeping with these theoretical perspectives, it seems plausible that parents' knowledge about the development of self-esteem in

adolescents, their everyday practice and their parenting style are related to the self-esteem and suicidal behavior of their adolescent children.

The emotional climate in which parents raise their children is known as their parenting style (Darling & Steinberg, 1993). Baumrind identified three parenting styles, i.e., authoritarian, authoritative, and permissive/indulgent (Darling & Steinberg, 1993; Dwairy, 2004; Hoff et al., 2002; Hussain et al., 2011; Robinson et al., 1995; DeVore & Ginsburg, 2005; Shyny, 2017). Authoritative parenting is characterized by warmth, consistency and discipline in mutuality, understanding and support, whereas authoritarian parenting is marked by high control and discipline with punishment, and permissive/indulgent parenting is characterized by very low control and demands, but high degrees of freedom and acceptance (Darling & Steinberg, 1993; Hussain et al., 2011; Robinson et al., 1995; DeVore & Ginsburg, 2005; Shyny, 2017; Alonso-Stuyck, 2019). Past studies revealed the beneficial effect of perceived authoritative parenting on academics (DeVore & Ginsburg, 2005; Aunola et al., 2000; Areepattamannil, 2010; Steinberg et al., 1992), the prevention of some risk behaviors such as adolescent smoking, drinking and marijuana use (Supple & Small, 2006; Piko & Balázs, 2012; Glozah, 2014; Zuquetto et al., 2019; Valente et al., 2020), and increased level of hope in adolescents (Heaven & Ciarroch, 2008). However, there have not been many studies on the effect of parenting on the mental health of their children.

Although a few studies considered self-esteem, the results of the studies were varied; for example, unlike the findings of studies in the US (Milevsky et al., 2007; McClure et al., 2010), Ghana (Glozah, 2014) and Iran (Alami et al., 2014), a study in Brazil (Martínez et al., 2007) reported that permissive parenting, rather than authoritative parenting, had an optimal effect on the self-esteem of Brazilian adolescents. Furthermore, there was no difference in the effect of these two parenting styles in a study conducted in India (Sharma & Pandey, 2015). Therefore, the effect of parenting may be dependent on the culture, socioeconomic status and gender, rather than being universal, and may not be able to be generalized to all parts of the world. Furthermore, there have been few studies related to parenting and adolescent suicidal risk behavior. Amongst the few studies, authoritarian parenting was associated with increased suicidal ideation among Jamaican adolescents (Smith & Moore, 2013), and

father's authoritarian style was associated with increased suicidal behavior among Lithuanian adolescents (Zaborskis et al., 2016); however, authoritarian parenting was not significantly associated with suicidal attempt among German adolescents (Donath et al., 2014). Regarding a possible protective effect, a study in the United States indicated that authoritative parenting might prevent suicide attempts because parenting characterized by both high support and boundaries was associated with a reduced number of suicide attempts, and authoritative parenting was found to be more effective in preventing suicide through self-esteem because self-esteem mediated this relationship (Cero & Sifers, 2013). However, it is unclear whether these findings from other cultural background are generalizable to the Nepalese context.

Moreover, parenting is a complex concept that includes not only the creation of an emotional climate but also many specific behaviors and characteristics of everyday practice. Although parenting practice and parenting style have been used in studies interchangeably, inclusion of both the parenting practice specific to the outcome of interest and parenting style in studies helps in gaining a better understanding (Steinberg et al., 1992; Spera, 2005). Parents' practices are a mechanism that directly helps their children attain their specific socialization goal. For example, a parent might be involved with his/her child in assisting with homework, reading with the child at home, etc., so that the child will get good grades in school, while parenting style is the characteristics of parenting or attitude that has an indirect influence on his/her child (Steinberg et al., 1992; Darling & Steinberg, 1993). Therefore, it was important to include in the present study items such as communication, positive reinforcement, and support, as the overall measure of parenting practice related to the adolescent's mental development, and more specifically the adolescent's self-esteem, along with the three parenting typologies (authoritarian, authoritative, and indulgent) to study their associations with the adolescent's self-esteem and suicidal risk behavior. Thus, the findings will be novel. Similarly, most past studies were based on adolescents' report of their parents' practice; however, the parents' report of their own practice might be different (Martínez et al., 2007; Kerr et al., 2012; Hoskins, 2014). Therefore, information generated by parental report of their own parenting will further add to the extant literature. Moreover, a family's socioeconomic status (SES) is associated with the parents' goals and values of socialization that they want to teach their children.

Parents vary in expectations, and parents may show different behaviors or create a different environment depending on their SES (Bornstein, 2002; Hoff et al., 2002; Anli & Karsli, 2010). This demonstrates the need to include SES while examining the effect of parenting on adolescent outcome. A previous study in Jamaica also recommended this (Smith & Moore, 2013). On the other hand, most studies have been conducted in Western developed nations. Hence, this study in Nepal fills the context, methods and knowledge gaps in existing literature, i.e., the findings from a developing country of SEAR helped to add an understanding on the impact of parenting on adolescents' outcome of self-esteem and suicidal behavior in a setting/context which is different than that of western nations or the nations of other regions. Furthermore, on the methodological approach, the study included the questionnaire on both the parenting practice and style, and the study has tried to confirm the effect of parenting, that is either the parents' report will have the same or a different effect on adolescents' outcome as those reported by previous studies because most of the past studies were based on adolescents' report. It is also believed that the present study has added in the sparsely explored phenomena, i.e., suicidal behavior of adolescents in relation to their parents. Moreover, to add new knowledge, this study has also explored the relationship between parent's knowledge on an adolescent's self-esteem and their practice, and to our best knowledge, that has been not yet explored in previous studies. Ultimately, this is the first study in Nepal that has applied the concept of parenting to elucidate the impact on adolescents' mental health outcomes, i.e., self-esteem and suicidal behavior.

3. Research goals

In this background and interest on mental health, behavior and development of adolescents in developing country context, I have conducted this study in Nepal, the first in this topic, to identify the roles of self-esteem, three sources of PSS from family, friends, and significant others, and three sources of SC in family, school, and neighborhood in understanding the adolescents' risk behavior. Furthermore, if some previously observed associations were the consequences of unmeasured confounding, this study would add clarity by controlling for variables such as demographics, SES, and family, school and peer relationships. Top of this, the study also clarifies that which sources of support and SC has important preventive association against

adolescents' risk behaviors. In addition, second aim was to identify the impact of parents' knowledge on adolescents' self-esteem and their parenting (practice and style) on self-esteem and suicidal-behavior of adolescents. It was intended to find out the answers on three research questions. First, does parents' knowledge of self-esteem in adolescents have a relationship with their parenting? Secondly, what are the effects of parent's knowledge, their parenting practice and style on the self-esteem of their adolescent children? Third, what is the effect of parenting on suicidal risk behavior in adolescents? Finally, the main goal is to obtain important findings which can be implied to contribute to the mental health of Nepalese adolescents through intervention at the adolescents, parents' and family level. It was expected that study findings will provide the areas that need to be focused on in parental counseling or planning interventions by health workers, school and community health nurses, counselors and others who are involved or interested in the area of adolescent development in Nepal.

Chapter II, Self-esteem, Perceived Social Support, Social Capital, and Risk-behavior among Urban High School Adolescents in Nepal

1. LITERATURE REVIEW AND OBJECTIVES

1.1 Literature Review

Various published articles, reports, thesis etc. related to adolescents' development, their risk behaviors and the association of these behaviors with several individual and social contextual factors was reviewed as the base of this study as well as to identify the areas that needed to be filled by this study. Therefore, this literature review section explains about the prevalence of three risk behaviors in adolescents i.e., substance use, suicidal behavior and sexual behavior in global, regional level and in Nepal. Similarly, the summary of the review on the findings from past studies on the role of adolescents' self-esteem, perceived social support and social capital at different level has also been presented in this section.

1.1.1 Prevalence of Risk Behavior among Adolescents

Substance use

Tobacco (smoking or smoke less), alcohol, marijuana and other types of drugs such as cannabis, opioids etc. are known as substances. Tobacco, alcohol and marijuana are the most common, however, psychoactive drugs are also in increasing trend (UNESCO, 2017; United Nations [UN], 2020). Overall prevalence of any type of tobacco use among adolescent is 12% and prevalence of alcohol is 26.5% worldwide and SEAR has the highest number of adolescent tobacco user i.e., 34% of the global total (WHO, 2019a; WHO, 2018c).

Substance use by adolescents in South East Asia Region and Nepal

The global school-based student health survey (GSHS) by WHO (2017a) among the countries of SEAR showed that the prevalence of any substance use was 10% in Nepal, Bangladesh and Sri Lanka, and highest 36% in Bhutan. The pooled prevalence of current cigarette smoking across nine countries (excluding India which has estimates only for 13–15-year-old) was 9.7%, Nepal had 5.9% and highest in Bhutan 24.6%. Similarly, the pooled estimate across the nine countries for current use of any tobacco product was 11.7%, highest 29.3% in Bhutan, and it was found at 8% in Nepal. Moreover, alcohol use also varied highly across countries ranging from 1.6% in Bangladesh to 23% in Thailand and 24.2% in Bhutan. The pooled estimate

across the 10 countries was 7.1%. Furthermore, current drug use was also found highest in Bhutan (12%), it was reported as 2.6% for Nepalese adolescents and the least in Indonesia (1%). The pooled estimate across the 10 countries was 2.5%. There was significant gender difference, male students were significantly more likely to substance use (cigarette smoking, tobacco use, alcohol use or marijuana) than girls across all the countries with few exceptions (WHO, 2017; WHO, 2018d).

Suicidal behavior

Suicide is the third leading cause of adolescent death globally. Adolescents of 10-19 years old in SEAR has the highest rate of self-harm in the world i.e., 8.7 per 100,000. Suicide is second leading cause of adolescents' death in SEAR, although in high income countries also, suicide is second cause for adolescent's death but the rate is 4.1 per 100,000. Though Suicide is the leading cause for adolescent's death in European LMICs, the rate is 7.6 per 100,000 which is less than the SEAR. In American Region LMICs suicide is 3rd cause with the rate of 4.8, and 4th cause with the rate of 2.2 per 100,000 in Western Pacific LMICS. Furthermore, in modified WHO regions, self-harm is amongst the top five causes of adolescent disability-adjusted life years (DALYs) in the two regions i.e., LMICs of Europe and SEAR and not in all other regions (High Income Countries, African LMICs, Eastern Mediterranean LMICs and Western Pacific LMICs) (WHO, 2017a, 2019).

Suicidal behavior of adolescents in Nepal

Suicidal behavior refers to a range of behavior that include thinking about suicide (or ideation), planning for suicide, attempting suicide and suicide itself (WHO, 2014a). We already discussed that the adolescents of 15-19 years of age in SEAR has the highest rate of self-harm than any other regions (WHO, 2017a). The GSHS by WHO (2017) found the percentage of 13–17-year-old students who reported that they seriously considered attempting suicide in the last 12 months varied from 4.9% in Bangladesh to 13.7% in Nepal. The pooled 12-month prevalence of suicide ideation across nine countries (excluding India) was 6.8%. Nepalese adolescents have highest suicidal ideations amongst the nations of SEAR.

Sexual Behavior

Adolescence is a time for sexual exploration and expression, thought to be influenced by rapid pubertal changes and hormonal surge. For many adolescents,

sexual intercourse begins in adolescence, in or outside of marriage. Early sexual initiation with unprotected intercourse can lead to unplanned pregnancies and sexually transmitted infections including HIV (WHO, 2018; UN, 2020a). At least 10 million unintended pregnancies occur each year among adolescent girls aged 15–19 years in the developing world. Of the estimated 5.6 million abortions that occur each year among adolescent girls aged 15–19 years, and 3.9 million are unsafe. Complications during pregnancy and childbirth are the leading cause of death for 15–19-year-old girls globally (Darroch et al., 2016; WHO, 2020c).

Sexual behavior in SEAR and Nepal

According to WHO (2018d) adolescent birth rate (ABR) in SEAR countries ranges of highest 113 per 1000 to girls aged 15-19 years in Bangladesh and second highest 71 per 1000 in Nepal, and the least in DPR Korea 0.7 per 1000. But Nepal Demographic and Health Survey (NDHS) in 2016 has found ABR is 56.3/1,000, still it is higher than global rate (MoHP, 2017). The NDHS also identified that, 25% of male and 1% of female of 15-24 years of age has premarital sexual intercourse. The first GSHS in Nepal among adolescent students (13-17 years) revealed that almost 21% of adolescents had sexual intercourse, among those 66.9% had sexual intercourse before age of 14 years, and only 57.4% of adolescent students used condom during their last sexual intercourse (Aryal et al., 2017). A cross-sectional survey in Kathmandu among the college students (of which 35.8% participants were 15-19 years age group from grade 11 and 12) showed that, despite the religious and cultural restrictions, prevalence of premarital sexual intercourse and risky sexual behavior are not uncommon in Nepal, and 39% reported that they have had premarital sex. About two-thirds of the respondents who had experienced premarital sex had sex before the age of 19, and seven percent reported that they had sexual intercourse before the age of 15 (Adhikari & Tamang, 2009).

1.1.2 Self-esteem

Self-esteem is the component of personality system that influence the individual's perception of self, values and decision (Jessor, 2014; Rosenberg, 1965). Adolescence is the time when a person intensely ask himself, "Who am I?" that is the basis of personal identity. The two aspects of identity are self-concept and self-esteem. Self-esteem refers to how people feel about themselves, and self-esteem remains

fluctuating during adolescence (McNeely & Blanchard, 2010; Rosenberg, 1965). Since decades many scholars were working and publishing on this topic, but less on understanding adolescent risk behaviors and there is paucity of studies in low-income countries. Notably, no study on relationship between self-esteem and adolescent's risk behavior in Nepal.

Among the studies in American adolescents showed that self-esteem was negatively associated with substance use (Chen et al., 2018; Zamboanga et al., 2009), those with higher self-esteem had increased perception of risk and reduced drinking behavior (Handren et al., 2016), and Slovakian study found the negative association with cannabis use but when this association was adjusted for demographic and SES, self-esteem remained only significant with smoking behavior of boys (Veselska et al., 2009). Similarly, studies among Australian, Chinese, Mexican and Taiwanese adolescents showed the protective association of self-esteem with suicidal behavior (Sharaf et al., 2009; Liu et al., 2017; Xu et al., 2018; Martin et al., 2005). It can be said that it could be similar to Nepalese adolescents, however, the findings from own cultural setting would be most reliable and applicable. Secondly, we could further extend past understanding by examining the association adjusted for factors related to family, school and peers not only the demographic and SES related factors. Moreover, there is variabilities in the reported association of self-esteem with adolescent sexual behavior in past studies, for example, some showed the negative association (Kerpelman et al., 2016), while other showed weak negative association (McAtee, 2012) or no association (Kalina et al., 2009). In this context researcher would like to add an understanding in Nepalese cultural context.

1.1.3 Social Support

Social support is the assistance available for an individual from the people of his social relationships that could be from family members to relatives, neighbors, school teachers, peers or from others. Social support is broad term, which could be physical, material or emotional support, and it could be in the form of offered or perceived or the received support (House et al., 1988; Kleiman & Riskind, 2012). Perceived social support refers to the individual's perception of availability of needed support and the satisfaction with that support (Haber et al., 2007; Zimet et al., 1988). The emotional support has the most important role on mental health, positivity and

wellbeing (Çevik & Yildiz, 2017; Moreira et al., 2014; Potts & Mandleco, 2011). Therefore, PSS might have important role on adolescent's development.

Literature related to sexual behavior and PSS are very scarce, though Çakar and Tagay (2017) and Ndugwa et al. (2011) showed the association of PSS with combinations of adolescent's risk behavior among which sexual behavior was one. There are only few studies available which took account of PSS and suicidal behavior (Kang et al., 2017; Sharaf et al., 2009), although comparatively little more work has been done on substance use (Bendtsen, 2013; Brassai, 2011; Nguyen, 2015; Reininger et al., 2012). However, it is needed to examine in Nepalese context, second, it is elusive that either those associations were controlled for contextual factors. It was also realized that the examination of relation between the support from different sources with different risk behavior specifically could provide us clear understanding about from which sources of support could have better preventive role over others. Hence, this study has specified the different sources of support and examined each of their role on risk behaviors.

1.1.4 Social Capital

Social capital has been defined as the cooperative and trustworthy relationship between people. Physical capital refers to physical objects, whereas human capital is properties of individuals, and social capital refers to connections among individuals that creates social networks, the norms of reciprocity and trustworthiness, and entail mutual obligation and responsibility for action. The common consensus of all the social capitalists (theorists/scholars) is that the level of interpersonal trust, reciprocity, norms, cohesion and mutual aid which act as resources or the property that is accessed through and inherent in social relation within a social structure (Coleman, 1988; Putnam, 2000; Kawachi & Berkman, 2000; Tzanakis, 2013; Ferguson, 2006). The SC at different levels co-occurs among the adolescents i.e., within the context of family, school and peers (Ahlborg et al., 2019).

Although, for last 20 years the concept of SC dragged the attentions of scholars beyond social science to the field of health and epidemiology, and studies were started to proliferate, resulting in ample researches related to SC and adult health outcomes but still there are a few on adolescents, almost scarce in developing countries, and the concept remains underutilized for understanding adolescents and

youth engagement in risk behaviors (De Silva et al., 2005; Lundborg, 2005; Moore & Kawachi, 2017; Takakura, 2011, 2014; Kaljee & Chen, 2011; McPherson et al., 2014; McPherson et al., 2013). Though there were studies in west or developed nations on SC and substance use especially smoking and alcohol use (Åslund & Nilsson, 2013; Magson et al., 2016; Takakura, 2011; Jorge et al., 2018), there is lack of studies on association of SC and suicidal behavior (Langille et al., 2012) and sexual behavior (Crosby et al., 2003). The lack of comprehensive valid scale to measure different sources of SC for the studies on adolescents was felt. More noticeably, to specify the SC at different level and its role on different risk behavior of adolescents controlled for various factors related to social context was needed which could bring strong evidence and could add on clear understanding. The study from developing country context can further add in our understanding on the role of different sources of SC on different risk behaviors.

1.2 General Objective of the Study

The overall objective of the study was to identify the risk behaviors and the role of self-esteem, perceived social support (from family, friends and significant others) and social capital (at family, school and neighborhood) on risk behaviors of urban high school adolescents of Nepal.

1.3 Specific Objectives of the Study

To assess the risk behaviors of adolescents (substance use, suicidal behavior and sexual behavior),

To assess the level of self-esteem, PSS and SC of the adolescents.

To find out the association of self-esteem with risk behaviors of adolescents adjusting for all the covariates (demographic, SES, family, and school related contextual factors).

To identify the association of PSS (from family, friends and significant others) with risk behaviors of adolescents adjusting for all the covariates (demographic, SES, family, and school related contextual factors).

To elucidate the association between SC (at family, school and neighborhood) and risk behaviors of adolescents adjusting for all the covariates (demographic, SES, family, and school related contextual factors).

1.4 Hypothesis of the Study

There is significant effect of self-esteem on risk behaviours.

There is significant association between PSS (from family, friends and significant others) and risk behaviours.

There is significant effect of SC (family, school and neighborhood) on risk behaviors.

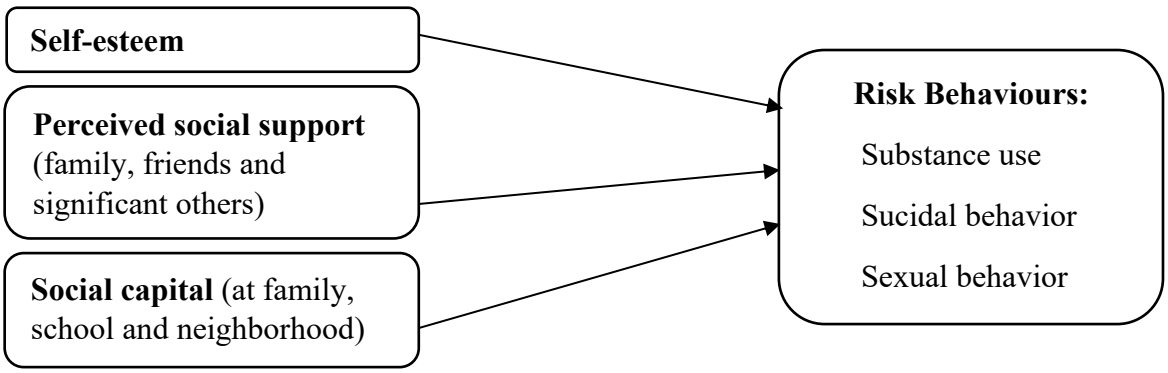


Fig.1: Hypothesis model for the analysis of relationships between independent and dependent variables of the study

1.5 Operational Definitions of the Variables

Adolescent: In this study adolescents are the students of class nine to eleven at the age between 13-19 years.

Socio-demographic factors: Age, sex, ethnicity, religion, area of residence, family type etc. are the socio-demographic factors in this study.

Socioeconomic status (SES): It is measured in terms of parents' education level, occupation, and economic status as perceived and reported by adolescents.

Social Contextual factors: In this study the context related to adolescents' everyday life that is family, school, and peers were considered as social context, and the factors related to these contexts as below were the socio-contextual factors for this study.

Family factors: Family conflict and violence, perceived love and bonding with parents, physical abuse, verbal/emotional abuse at home, access to internet, perceived parental control/monitoring, and family members' use of substances.

School related factors: Type of school, academic performance (result of last annual examination), parental expectations in academics of adolescents, peer pressure for risk behavior, friends' involvement in risk-behaviors, appreciation by teachers, teacher-student relationship, how teacher behave at school, and school rules.

Self-esteem: Self-esteem was assessed through the score on Rosenberg Self-esteem Scale (RSES) which ranges between 0-30. Score below 15 was considered as low self-esteem based on the available literatures (Abraham, 2010; García et al., 2019; Lamichhane, 2015; McGee & Williams, 2000; Shanmugam & Kathyayini, 2017).

Perceived social support: In this study perceived social support means the perception of the adolescent that there is someone whom they can share joy and sorrow, there are persons who provide emotional support, listen when adolescents are in problem and help to solve them. Perceived social support was measured with Multidimensional Scale of Perceived Social Support scale (MSPSS) developed by Zimet et al. (1988), which is a brief research tool designed to measure perceptions of support from 3 sources: family, friends, and significant others. The scale comprised of a total of 12 items in 7-point likert scale, with 4 items for each subscale. On the basis of total score, level of perceived social support was determined i.e., 1-2.9: low, 3-5: medium and 5.1-7: high support.

Social Capital: In this study, three forms of SC were measured i.e., family SC was measured with 6 items in three-point likert scale with the total score of 18. School and neighborhood SC were measured by 12 items (7 for school and 5 for neighborhood) on a four-point Likert scale. The total score for school SC was 28 and for neighborhood SC was 20.

Risk Behaviour: In this study risk behavior was defined as involvement of adolescents in three behaviors namely substance use (tobacco, alcohol, marijuana and drugs), suicidal activity (ideation, plan and attempt) and sexual activity (watching sexually explicit materials and sexual intercourse) and that was measured with questions based on the CDC Youth Risk-Behavior Survey and WHO survey questionnaire for adolescents' risk-behavior in South Asia, including Nepalese adolescents (CDC, 2017; WHO, 2017).

1.6 Significance of the Study

The study has yielded information on adolescents' risk behaviors and the preventive role of self-esteem, different sources of perceived social support and social capital. These findings might have useful practical and educational implication for health workers including school/community health nurses, teachers, families, communities & others working in the area of adolescent health, behavior, and positive

development. The researcher hoped that the study findings will help to develop the preventive intervention at adolescent, family and school level. It may also be useful for sensitizing parents as well as policy makers in planning child and adolescent related intervention. The findings obtained will also contribute to add in scant literature in understanding the adolescents' risk behaviors in the context of Nepal. Further it will be helpful for the students, researchers and the all who are interested in this area.

1.7 Theoretical underpinnings/Theoretical framework of this study

An ecological perspective was adopted as the theoretical base for this study i.e., Urie Bronfenbrenner (1979) ecological system theory, and WHO (2014) ecological model on determinants of adolescent's health and development. Researchers have described the models through which the ecological concept can be applied for the studies (e.g., McLeroy et al., 1988; Stokols, 1992; DiClemente et al., 2005; Reininger et al., 2012 etc.). Ecological theory discusses that an individual remains at the center surrounded by several nested environmental systems that is one after another interrelating with each other. The main concept of the theory is human growth and development is influenced and shaped by a number of environmental factors: the microsystem, the mesosystem, the exosystem, the macrosystem and later the chronosystem. These contexts/systems exert influences either gross or few on the core/center i.e., to the individual. The individual who remains at the center is the adolescent in this study. By applying this theoretical concept, study is intended to identify the influence of own personal factors and from the different contextual factors for risk behaviors of adolescents. The adolescents' personality factors, his perception of his environment that is through his daily interaction, such as self-esteem, perception of support, and availability of cognitive social capital to him are concerned in this study and the association of these factors to the adolescents' outcome of substance use, suicidal behavior or sexual behavior are studied. Microsystem is the immediate environment of child/adolescent which comprises of family/parents, peers and school that are most closely linked to the adolescent and mostly come into contact in everyday life. Mesosystems is described as the system within which microsystems function and mesosystem is also known as connection or the relationship among entities involved e.g., interaction with and in-between parents, teacher, neighborhood

etc. The exosystem consist of influence at the community level, that include social institutions which affect adolescent's indirectly i.e., mass media, community resources etc. The macro system is related to broader cultural values, laws and government resources. These beliefs, values or rules are the reference or guide within which the micro and meso system operate for e.g., cultural belief about smoking, drinking or teenage sexual activity etc. The chronosystem refers to the experiences of an individual over time and the influences of the environment or setting in which a person lives throughout their developmental process. Hence, the adolescents' three risk behaviors (substance use, suicidal behavior and sexual behavior) are the outcome of influence is concerned in this study (Bronfenbrenner, 1979, 1986; Bronfenbrenner & Morris, 2007; Ryan, 2001).

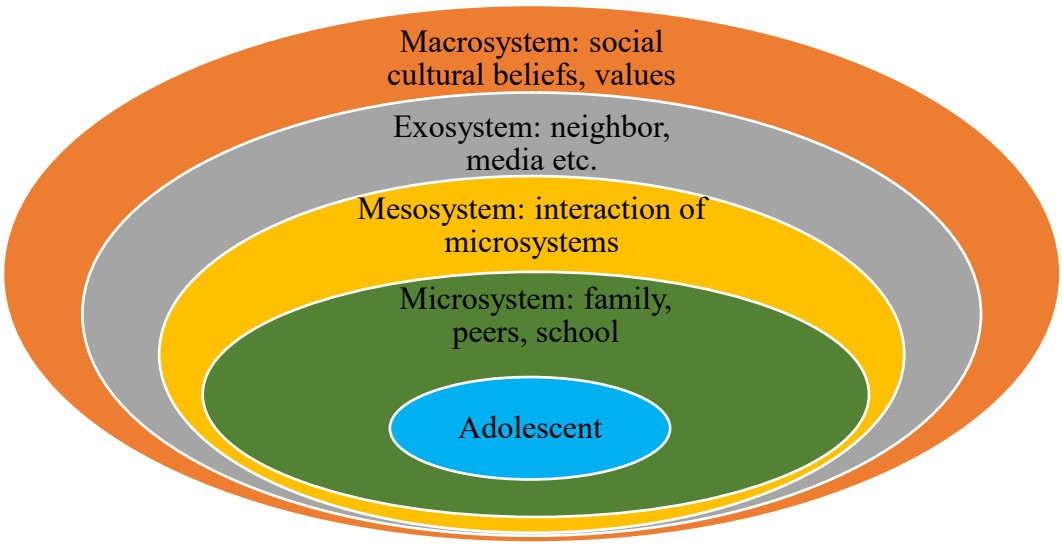


Fig. 2: Theoretical framework based on Bronfenbrenner's ecological system theory (Bronfenbrenner, 1979).

2. RESEARCH METHODOLOGY

2.1 Research Design

The cross-sectional analytical study design was used in this study.

2.2 Research Setting and Population

The study was conducted in Nepal, located in South East Asia, with a geographical area 147,181 square kilometers. The country has total population of 28.4 million people, of which almost 24% are adolescents. Although Nepal is a multi-ethnic, multi-lingual, multi-religion, and multi-cultural country, Nepali is the main language, and 81% of people follow the Hindu religion. According to the World Bank

income group, it is a country with low income, overall literacy rate of 67%, and agriculture as the major occupation (Central Bureau of Statistics, 2014). Geographically the country is divided into three regions, running east to west. They are the Mountain, the Hill and the Terai (Plains). For administrative purpose, after recent changes approved by Nepal's Constituent Assembly in September 2015, Nepal is divided into seven provinces, each of which is sub-divided into districts with urban and rural areas/municipalities. The adolescents from high schools of urban areas were the population for this study.

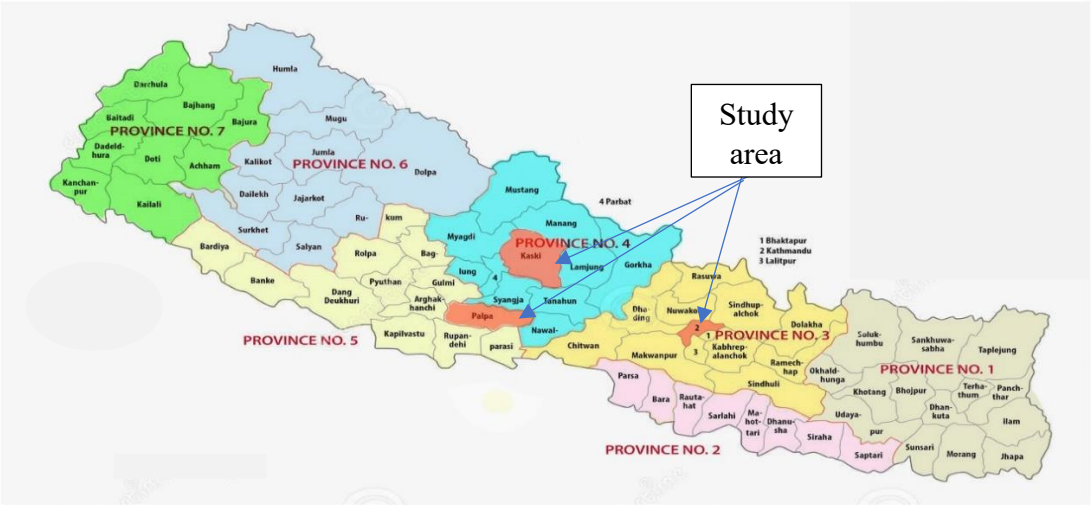
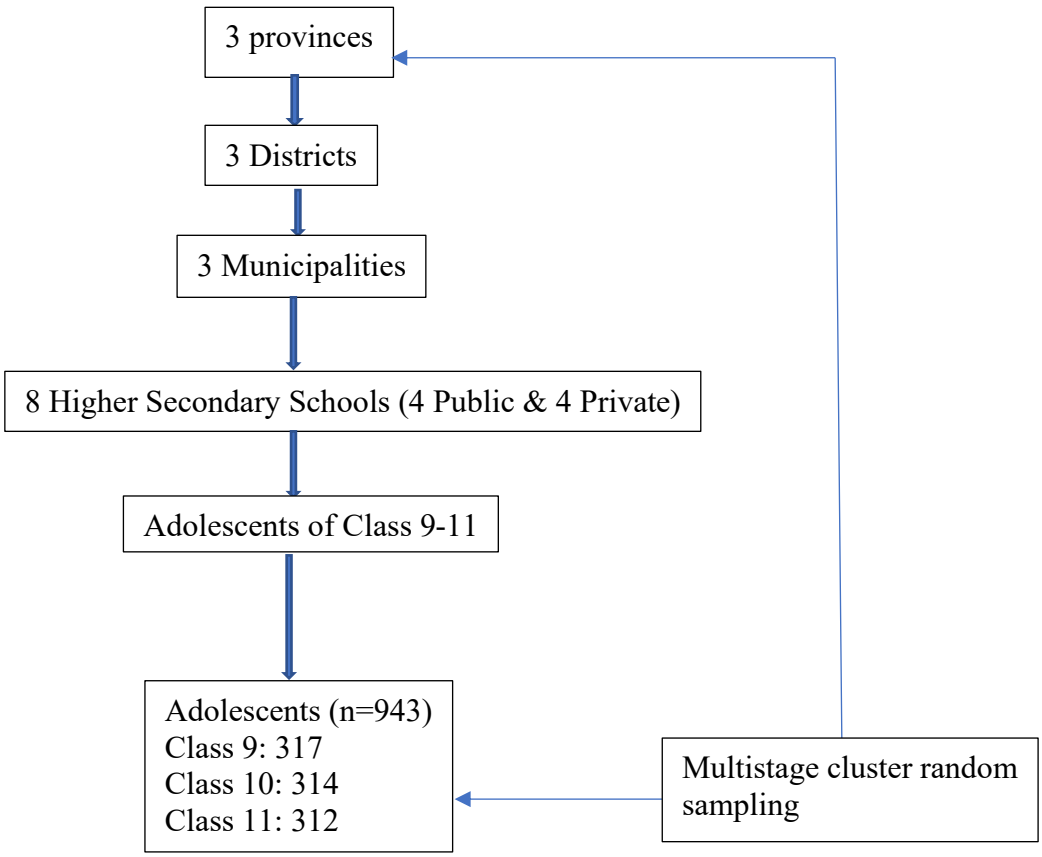


Fig. 3: Map of Nepal (Government of Nepal, Ministry of Land Management, Cooperatives and Poverty Alleviation, 2018)

2.3 Sampling and Participants

Multistage cluster random sampling technique was used to obtain the representative participants for the study. At first, three provinces from the total of seven were selected for this study: Province number 3, which included Kathmandu, the capital or main city of Nepal; Province number 4, which included the Kaski district and Pokhara that represented other middle urban areas; and Province number 5, which included the Palpa district i.e., Tansen municipality which represented the smaller countryside urban areas of Nepal. We selected urban areas because of the higher prevalence of risk behaviors among adolescents in urban areas (Karki et al., 2016; Adhikari et.al., 2016; MoHP, 2012) and the possible impact of urbanization on risk behaviors (Kabir and Goh, 2014; UN, 2020). According to the Ministry of Education (2017), the total number of higher secondary schools in Provinces 3, 4, and 5 was 978, 561, and 532, respectively. Hence, 3 schools (2 government and 1 private) from

Kathmandu, 3 schools (1 government and 2 private) from Pokhara, and 2 schools (1 government and 1 private) from Palpa were selected. Classes 9-11 of those schools were the final clusters, and adolescents aged 13-19 years (who were available and willing to participate) were the participants in this study. To get equal representation of participants from three grades, lottery was done to select the classes and sections of those schools according to the number of students in one class/section. Although at initial 1070 adolescents participated in the study (response rate, 92%), considering the completeness of the questionnaire, 943 were included in the final analysis. Therefore, the final sample size or the number of participants of this study was 943.



`Fig. 4: Participant Selection Flow

2.4 Instrument

Structured self-administered questionnaire was used for data collection which consisted of questions as below.

Sociodemographic and socioeconomic status (SES) related information consisted of questions on age, sex, religion, ethnicity, education level, family type, parental marital status, parent's education and occupation, and economic status as perceived by the adolescents; these questions were developed by reference to past

studies (Lamichhane, 2015; Karki et al., 2016; Banstola, 2017; Aryal et al., 2017; WHO, 2017).

Social context (information related to family and school including teachers and peers). Family factors included family conflict and violence, perceived love and bonding with parents, access to mass media, perceived parental control/monitoring, and family members' use of substances. School factors included type of school, academic performance (result of last annual examination), peer pressure, friends' involvement in risk-behavior, appreciation by teachers, teacher-student relationship, how teacher behave, and school rules.

Social capital at three sources i.e., family, school and neighborhood. For this study, questions related to cognitive social capital at these three levels were used. Family SC was measured by 6 items on a 3-point scale (satisfaction, trust, and cohesion at the family level), which was developed after thorough review of available literature (McPherson et al., 2013; Rothon et al., 2012; Magson et al., 2016; Raymond-Flesch et al., 2017). Forward and backward translation of the tool was confirmed with language experts and then a pretest of the tool was conducted before execution for final data collection. After the pretest, questions were modified to make them clearer and easier to answer. Reliability was tested with Cronbach alpha, and the convergent and discriminant validities of the family SC were studied by confirmatory factor analysis using average variance extracted and maximum shared variance (Hair et al., 2010). School and neighborhood SC were measured by 12 items (7 for school and 5 for neighborhood) on a 4-point Likert scale that was previously utilized (Takakura et al., 2014; Paiva et al., 2014). Cronbach's alpha of the Nepali version of the tool was 0.87 in total, 0.68 for family SC, 0.86 for school SC, and 0.89 for neighborhood SC in the present study. Principal component analysis and confirmatory factor analysis demonstrated validity of the tools.

The multidimensional scale of perceived social support (MSPSS) (Zimet et al., 1988) was used to measure PSS from 3 sources: family, friends, and significant others. The scale was comprised of 12 items, scored on a 7-point scale that ranged from 1 (very strongly disagree) to 7 (very strongly agree), and resulted in a total PSS score of 12-84. The total PSS score was divided by 12 to convert it into a score of 1-7. This tool showed high reliability ($\alpha = 0.93$, 0.88, 0.88, and 0.84, respectively, for

total, family, friends, and significant others) in the present study. Inter-item correlation was good, and principal component analysis showed the good factor loadings for which they were intended. This tool was already translated in Nepali and previous studies among Nepalese adolescents also reported good internal validity and the reliability (Tonsing, 2012; Lamichhane, 2015; Banstola, 2017).

The Rosenberg Self-esteem Scale (RSES) was used to measure self-esteem levels of adolescents. This 10-item self-report measure consisted of 5 positively-worded and 5 negatively-worded items answered on a 4-point scale that ranged from 'strongly agree' (score: 3) to 'strongly disagree' (score: 0), with a total score that ranged from 0-30. A higher score indicated higher self-esteem. The data showed reliability of $\alpha = 0.75$. Nepali version of this scale showed good practicability and high internal reliability when used with Nepalese adolescents ($\alpha = 0.80$) (Lamichhane, 2015).

Risk-behavior (substance-use, suicidal behavior, and sexual behavior) of adolescents was measured with questions based on the CDC Youth Risk-Behavior Survey and a survey questionnaire for adolescents' risk-behavior in South Asia, including Nepalese adolescents (CDC, 2017; WHO, 2017; Aryal et al., 2017). For substance-use, participants were asked if they had ever used tobacco, alcohol, marijuana, or drugs, and if the response was yes, then how many times had they used the substance in the past 30 days. For suicidal behavior, they were asked about suicidal thoughts, plans, or attempts in the previous 12 months, and for sexual behavior, they were asked if they had watched sexually explicit materials/pornography and ever had sexual contact. Those who responded yes to any of these questions were coded as 1, and those who responded no were coded as 0.

2.5 Data Collection Procedure and Ethical Considerations

Data collection was done from the students in their respective classrooms through self-administered questionnaire and it took around 30 minutes to complete the questionnaire by the adolescents. Before the collection of data, the researcher explained the purpose of the study and assent was obtained from the adolescents. Consent form was sent with adolescents to obtain consent from their parents/guardian. The participation in the study was fully voluntary and the respondents were given full authority to withdraw their participation at any time during the investigation.

Anonymity was maintained by asking students not to write their names in the questionnaire. Students were ensured that their identity will not be disclosed to anyone as they did not have to write their names in the questionnaire. They were ensured that the information will be used for research purpose only. Precautions was taken throughout the study in every step to safeguard the right and welfare of all respondents. Ethical approval from Ethical Review Board, Okayama Prefectural University (26 October, 2018, ref. 18-47) and formal permission from concerned school authorities in Nepal was obtained for this study (76/075, 80/075, 231/075, 269/075).

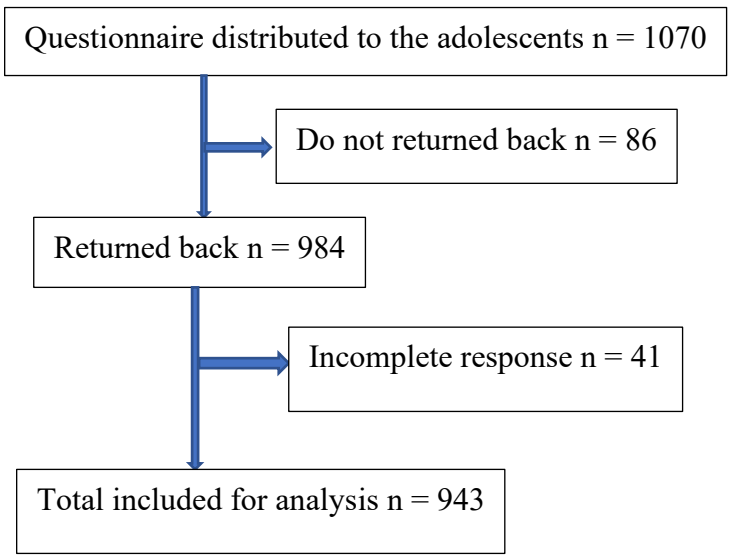


Fig. 5: Data Collection Flow

2.6 Data Analysis Procedure

Data were analyzed with SPSS version 26.0 (IBM, Tokyo). Descriptive statistics (frequency, percentage, mean, and standard error) were used to describe the characteristics, and inferential statistics (bivariate and multivariate logistic regression analysis) were used at <0.05 significance level. Odds ratio (OR) was calculated with a 95% confidence interval (CI). A crude odds ratio (COR) was used to find bivariate association, and an adjusted odds ratio (AOR) was calculated to find any association of independent variables, adjustment for possible confounder variables such as demographics, SES (parents' education, occupation, and economic status as perceived by adolescents), family factors (conflict, violence, love-bonding with parents, substance-use by family members, control/supervision by parents), and school-related factors (type of school, peer pressure, friends involvement in risk-behavior, academic

performance, parental expectation in academics, teacher-student relationship, appreciation by teacher, how teachers behave, school rules/monitoring).

3. RESULTS

A total of 1070 adolescents were willing to participate, of which 943 adolescents provided complete responses and were therefore included in the final analysis (Table 1). The mean age of the respondents was 15.82 years, and the number of female participants was higher (51.7%). A higher percentage of males were involved in substance-use (25.1%) and sexual behavior (22.2%), but suicidal behavior was higher in females (11.9%). Adolescents who belonged to religions other than Hindu had higher rates of suicidal and sexual behavior (16.5% and 20.3%, respectively). Substance-use was higher for adolescents from Kathmandu (23.0%), and suicidal and sexual behaviors were higher in adolescents from Pokhara (12.5% and 20.8%, respectively).

The effect of parents' occupations was also significant, as seen by lower rates of risk-behaviors in adolescents whose mothers were homemakers (stay at home), and by less substance-use and suicidal behavior in those whose fathers were employed (Table 2). Regarding family type, 56.1% of adolescents were from single families and 43.9% were from joint families. Substance-use was higher (21.7%) for those in joint families. Adolescents in private schools had a higher prevalence of all three risk behaviors.

The mean scores for independent variables were: self-esteem, 16.51; PSS from family, friends, and others, 23.0, 21.39, and 20.35, respectively; and SC at family, school, and neighbor, 15.89, 20.81, and 14.67, respectively (Table 3). The prevalence of substance-use among adolescents was 18.9% and included alcohol (10.9%), tobacco (smoking, 8.3%; smokeless, 5.6%), marijuana (3.9%), and drugs (1.0%). The prevalence of suicidal behavior was 9.8% (thoughts, 7.8%; plan, 4.3%; attempt, 2.5%). Regarding inappropriate sexual behavior, 11.3% of adolescents watched sexually explicit material/pornography, and 2.4% had sexual contact.

Table 1. Descriptive information on adolescents' sociodemographic characteristics and risk behavior (n = 943).

Variables	Total No. (%)	Substance-Use		*P*	Suicidal Behavior		*P*	Sexual Behavior		*P*
		No	Yes		No	Yes		No	Yes	
Age (Mean ± Standard Deviation 15.82 ± 1.31)										
13–15 Years	388 (41.1)	311 (80.4)	76 (19.6)	0.627	344 (88.9)	43 (11.1)	0.249	342 (88.4)	45 (11.6)	0.244
16–19 Years	555 (58.9)	453 (81.6)	102 (18.4)		505 (91.2)	49 (8.8)		476 (85.8)	79 (14.2)	
Sex										
Male	455 (48.3)	341 (74.9)	114 (25.1)	<0.000*	420 (92.5)	34 (7.5)	0.023*	353 (77.8)	101 (22.2)	<0.000*
Female	488 (51.7)	423 (86.9)	64 (13.1)		429 (88.1)	58 (11.9)		465 (95.3)	23 (4.7)	
Ethnicity										
Brahmin/Chhetri	333 (35.3)	267 (80.4)	65 (19.6)	0.440	297 (89.7)	34 (0.3)	0.875	281 (84.4)	52 (15.6)	0.254
Janajati	505 (53.6)	407 (80.6)	98 (19.4)		456 (90.3)	49 (9.7)		445 (88.3)	59 (11.7)	
Others (Dalit, Muslim etc.)	105 (11.1)	90 (85.7)	15 (14.3)		96 (91.4)	9 (8.6)		92 (87.6)	13 (12.4)	
Religion										
Hindu	815 (86.4)	666 (81.8)	148 (18.2)	0.158	743 (91.3)	71 (8.7)	0.006 *	716 (88.0)	98 (12.0)	0.010*
Others	128 (13.6)	98 (76.6)	30 (23.4)		106 (83.5)	21 (16.5)		102 (79.7)	26 (20.3)	
School District										
Kathmandu	336 (35.6)	258 (77.0)	77 (23.0)	0.004*	303 (90.4)	32 (9.6)	0.035*	301 (89.6)	35 (10.4)	<0.000*
Kaski	361 (38.3)	290 (80.3)	71 (19.7)		316 (87.5)	45 (12.5)		286 (79.2)	75 (20.8)	
Palpa	246 (26.1)	216 (87.8)	30 (12.2)		230 (93.9)	15 (6.1)		231 (94.3)	14 (5.7)	
Type of family										
Single	529 (56.1)	440 (83.3)	88 (16.7)	0.048*	476 (90.3)	51 (9.7)	0.908	454 (86.0)	74 (14.0)	0.383
Joint	414 (43.9)	324 (78.3)	90 (21.7)		373 (90.1)	41 (9.9)		364 (87.9)	50 (12.1)	
Type of school										
Government/Public	562 (59.6)	474 (84.5)	87 (15.5)	0.001*	521 (92.9)	40 (7.1)	0.001*	501 (89.1)	61 (10.9)	0.011*
Private	381 (40.4)	290 (76.1)	91 (23.9)		328 (86.3)	52 (13.7)		317 (83.4)	63 (16.6)	

Total No. Total Number; Numbers in the parentheses indicate percentage; *significant *P* value < 0.05 on chi-square test.

Table 2. Descriptive information on socioeconomic status and risk behavior of adolescents (n = 943).

Variables	Total No. (%)	Substance-Use		*P*	Suicidal Behavior		*P*	Sexual Behavior		*P*
		No	Yes		No	Yes		No	Yes	
Socio-economic-status										
Hardly-sufficient	66 (7.0)	60 (90.9)	6 (9.1)	0.082	59 (89.4)	7 (10.6)	0.861	61 (92.4)	5 (7.6)	0.205
Sufficient	557 (59.1)	451 (81.1)	105 (18.9)		499 (89.9)	56 (10.1)		476 (85.5)	81 (14.5)	
Surplus	320 (33.9)	253 (79.1)	67 (20.9)		291 (90.9)	29 (9.1)		281 (88.1)	38 (11.9)	
Father's Education										
Illiterate	44 (4.7)	42 (95.5)	2 (4.5)	0.044*	41 (93.2)	3 (6.8)	0.656	42 (95.5)	2 (4.5)	0.223
Literate	757 (80.3)	607 (80.3)	149 (19.7)		683 (90.3)	73 (9.7)		654 (86.4)	103 (13.6)	
Don't know	142 (15.1)	115 (81.0)	27 (19.0)		125 (88.7)	16 (11.3)		122 (86.5)	19 (13.5)	
Mother's Education										
Illiterate	105 (11.1)	85 (81.7)	19 (18.3)	0.511	97 (92.4)	8 (7.6)	0.301	93 (88.6)	12 (11.4)	0.852
Literate	700 (74.2)	572 (81.7)	128 (18.3)		633 (90.6)	66 (9.4)		606 (86.6)	94 (13.4)	
Don't know	138 (14.6)	107 (77.5)	31 (22.5)		119 (86.9)	18 (13.1)		119 (86.9)	18 (13.1)	
Mother's Occupation										
Other	519 (55.0)	406 (78.4)	112 (21.6)	0.018*	456 (88.0)	62 (12.0)	0.012*	439 (84.6)	80 (15.4)	0.024*
Home maker	424 (45.0)	358 (84.4)	66 (15.6)		393 (92.9)	30 (7.1)		379 (89.6)	44 (10.4)	
Father's Occupation										
Not employed	68 (7.2)	47 (69.1)	21 (30.9)	0.009*	55 (80.9)	13 (19.1)	0.007*	56 (82.4)	12 (17.6)	0.250
Employed	871 (92.8)	713 (82.0)	157 (18.0)		791 (91.0)	78 (9.0)		759 (87.2)	111 (12.8)	

Total No. Total Number; Numbers in the parentheses indicate percentage; *significant *P* value < 0.05 on chi-square test.

Table 3. Prevalence of risk behavior with self-esteem, perceived social support, and social capital (n = 943).

Variables	Total No. (%)	Substance-Use#		*P Value*	Suicidal Behavior#		*P*	Sexual Behavior#		*P*
		No	Yes		No	Yes		No	Yes	
Self-esteem (Mean ± SE 16.51 ± 0.12)										
Low	281 (29.8)	208 (74.0)	73 (26.0)	<0.000*	236 (84.3)	44 (15.7)	<0.000*	244 (86.8)	37 (13.2)	0.998
High	662 (70.2)	556 (84.1)	105 (15.9)		613 (92.7)	48 (7.3)		574 (86.8)	87 (13.2)	
PSS from family (Mean ± SE 23.0 ± 0.17)										
Low and Medium	185 (19.6)	120 (65.2)	64 (34.8)	<0.000*	146 (79.3)	38 (20.7)	<0.000*	147 (79.5)	38 (20.5)	<0.001*
High	758 (80.4)	644 (85.0)	114 (15.0)		703 (92.9)	54 (7.1)		671 (88.6)	86 (11.4)	
PSS from friends (Mean ± SE 21.39 ± 0.18)										
Low and Medium	259 (27.5)	188 (72.9)	70 (27.1)	<0.000*	214 (82.9)	44 (17.1)	<0.000*	206 (79.5)	53 (20.5)	<0.000*
High	684 (72.5)	576 (84.2)	108 (15.8)		635 (93.0)	48 (7.0)		612 (89.6)	71 (10.4)	
PSS from significant others (Mean ± SE 20.35 ± 0.20)										
Low and Medium	333 (35.3)	259 (78.0)	73 (22.0)	0.074	288 (86.7)	44 (13.3)	0.008*	278 (83.5)	55 (16.5)	0.024*
High	610 (64.7)	505 (82.8)	105 (17.2)		561 (92.1)	48 (7.9)		540 (88.7)	69 (11.3)	
Family SC (Mean ± SE 15.89 ± 0.06)										
Low	12 (1.3)	5 (41.7)	7 (58.3)	<0.000*	9 (75.0)	3 (25.0)	0.189	8 (66.7)	4 (33.3)	0.100
High	929 (98.7)	757 (81.6)	171 (18.4)		839 (90.5)	88 (9.5)		808 (87.1)	120 (12.9)	
School SC (Mean ± SE 20.81 ± 0.12)										
Low	60 (6.4)	44 (73.3)	16 (26.7)	0.113	51 (85.0)	9 (15.0)	0.160	45 (75.0)	15 (25.0)	0.005*
High	882 (93.6)	719 (81.6)	162 (18.4)		797 (90.6)	83 (9.4)		772 (87.6)	109 (12.4)	
Neighbor SC (Mean ± SE 14.67 ± 0.09)										
Low	91 (9.7)	65 (71.4)	26 (28.6)	0.013*	81 (89.0)	10 (11.0)	0.682	76 (83.5)	15 (16.5)	0.324
High	852 (90.3)	699 (82.1)	152 (17.9)		768 (90.4)	82 (9.6)		742 (87.2)	109 (12.8)	

Total No. Total Number; Numbers in the parentheses indicate percentage; *significant *P* value < 0.05 on chi-square test.; # multiple response. Abbreviations: PSS, perceived social support; SC, social capital.

[#]Substance-use: 178 (18.9%), alcohol 103 (10.9%), smoking tobacco 78 (8.3%), smokeless tobacco 53 (5.6%), marijuana 37 (3.9%), and drug use 9 (1.0%).

[#]Suicidal behavior: 92 (9.8%), suicidal thought 74 (7.8%), plan 41 (4.3%), attempted 24(2.5%).

[#]Sexual behavior: 124 (13.2%), watch pornography/sexually explicit materials 107 (11.3%), sexual contact 23 (2.4%).

Table 4. Odds ratios and confidence intervals for the effect of self-esteem, three sources of social support, and three sources of social capital on substance use, suicidal behavior and sexual behavior of adolescents, controlling all other variables including demographic, SES, family, and school factors (n = 943).

	Substance Use						Suicidal Behavior						Sexual behavior					
	Crude Model			Adjusted Model			Crude Model			Adjusted Model			Crude Model			Adjusted Model		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
Independent variables																		
Self esteem	0.93	0.89	0.97	0.95	0.90	1.00	0.85	0.80	0.91	0.90	0.83	0.96	1.02	0.97	1.08	1.11	1.04	1.19
PSS from family	0.93	0.90	0.95	0.95	0.91	0.98	0.92	0.89	0.95	0.95	0.91	0.99	0.95	0.92	0.97	0.98	0.93	1.03
PSS from friends	0.94	0.92	0.97	0.97	0.94	1.00	0.93	0.90	0.96	0.96	0.92	0.99	0.94	0.91	0.96	0.96	0.92	1.00
PSS from other significant persons	0.97	0.94	0.99	1.00	0.96	1.03	0.96	0.93	0.99	0.97	0.93	1.01	0.96	0.94	0.99	0.99	0.95	1.03
Family social capital	0.82	0.76	0.88	0.83	0.75	0.93	0.78	0.72	0.86	0.80	0.70	0.92	0.88	0.81	0.96	0.87	0.75	1.01
School social capital	0.93	0.89	0.97	1.00	0.94	1.05	0.87	0.83	0.92	0.91	0.85	0.98	0.91	0.87	0.95	0.98	0.91	1.04
Neighborhood social	0.91	0.85	0.98	0.96	0.90	1.03	0.91	0.85	0.98	0.97	0.89	1.06	0.97	0.91	1.03	1.01	0.92	1.10

OR: odds ratio, CI: confidence interval, LCI: lower confidence interval, UCI: upper confidence interval, SES: socioeconomic status, PSS: perceived social support. Crude models show ORs and CIs between each independent variable and three types of dependent variables.

We demonstrated the relationships between each independent variable of self-esteem, PSS, or SC, and each dependent variable, i.e., risk behavior of substance use, suicidal behavior, sexual behavior (Table 4). Multivariate analysis controlled for all covariates revealed that adolescents with higher support from family and higher family SC benefited from a significant protective effect against substance use. Similarly, adolescents with high self-esteem, higher support from family and friends, and higher family and school SC were significantly less likely to demonstrate suicidal behavior. However, adolescents with high self-esteem were more likely to exhibit sexual behavior, while none of the adolescents with PSS and SC showed any association with sexual behavior. All results of the adjusted models including the OR and CI values are presented in supplementary tables 1-7.

4 DISCUSSION AND CONCLUSION

Adolescent risk-behavior is an important health and social issue globally, and Nepal is no exception. Some studies have tried to indicate prevalence for different risk-behaviors, but a knowledge gap about what are the actual protective factors still remains. Therefore, this study was an attempt to assess the effect of important but rarely explored factors like self-esteem, PSS, and SC on substance-use, suicidal behavior, and sexual behavior by specifying different sources and controlling for all other demographic, SES, family, peer, and school related factors, because even lower prevalence risk-behaviors have very high adverse impacts on not only the adolescents involved but also their families, society, and the nation (UNODC, 2018; CDC, 2018).

4.1 Prevalence of Risk Behavior

Regarding substance use, a similar prevalence of tobacco and marijuana use has been reported by other studies, but either lower or higher rates of alcohol and other intoxicant use have been reported (WHO, 2017; Kabir & Goh, 2014; Karki et al., 2016). A study in the eastern part of Nepal found that smoking was higher among adolescents of private schools, as was the case in our study, but that difference was not statistically significant (Pradhan et al., 2013). Our study found a lower prevalence of suicidal behavior than that reported by other studies in Nepal (WHO, 2017; Thapa et al., 2017); however, the WHO study included only adolescents who were 13–17 years of age and the other study was conducted in eastern Nepal among adolescents 12–16 years of age. Nepal adolescents and youth survey 2010/11 reported that sexual intercourse among adolescents was 13.27% for ages 10–14 years and 60.64% for ages 15–19 years (MoHP, 2012), and first GSHS survey recently conducted in Nepal showed that almost 21% of school adolescents 13–17 years of age had sexual intercourse (Aryal et al., 2017). Those percentages are higher than the present findings, and the difference might be because adolescents from both urban and rural areas were included in both studies, although the 2011 report was a household survey of those in school and out of school and therefore might have included more married adolescents in the households. Similar to our findings, a study in Hong Kong reported that 10% of adolescents consumed pornographic materials, and that internet pornography was the most common medium (Shek & Ma, 2012). There was variation across countries

in the reported sexual behavior of adolescents (Lodz et al., 2019; Enejoh et al., 2016; Reininger et al., 2012).

The mean self-esteem score in our study was similar to findings from previous studies (Lamichhane, 2015; Maharjan, 2008). The mean scores for school and neighbor SC in our study were less than that reported among Japanese adolescents measured with the same scale (Takakura et al., 2014). It seems that adolescents' responses to available SC might differ between geographic areas with unique social contexts.

4.2 Substance use

Our multivariate-analysis proved that adolescents with high PSS and SC from family were less vulnerable to substance-use, but the association between self-esteem and substance use was confounded by other factors, i.e., the father's education, occupation and income, friend's substance use, and strongest of all, peer pressure. Although past international studies showed negative associations between self-esteem and substance use including alcohol and marijuana, the role of self-esteem was weakened by the peer-related confounding factors (Handren et al., 2016; Chen et al., 2018; Veselska et al., 2009; Kim, 2011; Karaman, 2013). Peer factors are especially concerning during adolescence because this is the period when more time is spent with friends and most of the time is spent in school or outside the family. Consequently, simply the enhancement of self-esteem is not sufficient. Our study also revealed a negative association between PSS and substance-use and confirmed that family PSS was the strongest and most consistent source of PSS.

When SC was taken into account, an association with substance use was demonstrated by several studies (Curran, 2007; Wen, 2017; Magson et al., 2016). An Indian study also showed significant associations with family factors like parent-child relationship and communication (Chhabra & Sodhi, 2012). However, evidence from those studies was not sufficient to determine the association between SC and substance-use in the context of Nepal, and if SC is strongly influenced by other factors that are known to be associated with these substance-use behaviors, it is now clear from this study that adolescents with high family SC are less likely to use substances. Furthermore, past studies showed an association between neighbor SC and substance use (Jorge et al., 2018; Åslund & Nilsson, 2013). In this context, the present study

provided insight that other factors such as SES, peers etc. have a greater effect on such an association. Moreover, although past studies from developed nations showed the role of community or neighbors, the relationship or the perception and availability of neighbor SC might be different in different parts of the world. Therefore, our findings suggest that if family can provide and create higher support, and SC, adolescents might be deterred from substance-use.

4.3 Suicidal behavior

This study indicated the role of self-esteem, PSS (from family and friends), and SC (family and school) in protecting adolescents from suicidal behavior. We found that higher self-esteem makes adolescents less prone to suicidal behavior, and this effect of self-esteem has also been demonstrated in previous studies that included South Asian countries (Sharaf et al., 2009; Kleiman & Riskind, 2013; Huang et al., 2017; Xu et al., 2018; Chatard et al., 2009). Therefore, we conclude that self-esteem is a strong protector of adolescents against suicidal behavior.

The consistent protective effect of family and friends observed in this study and in studies from other countries supports the present finding that adolescents with high PSS from family were less likely to exhibit suicidal behavior (Kang et al., 2017; Springer et al., 2006; Randall et al., 2014). Similarly, Jamaican adolescents who had protective factors in the home were at less risk of suicide, however, there was no association with protective factors outside the home (Abel et al., 2012). This again suggests that family factors, especially having parents in the home, play an important protective role. Furthermore, previous studies determined that suicidal behavior was exhibited less by adolescents with high support from friends (Dema et al., 2019; Xu et al., 2018; Kleiman & Riskind, 2013). Based on these findings, adolescents should first be helped to enhance and maintain their self-esteem level. Additionally, family and friends need to support adolescents in such a way that they can perceive that adequate support is available.

Studies from South Korea and Canada observed a predictive effect of SC on suicidal behavior in adolescents (Bae, 2019; Langille et al., 2012). The first study was related to communication and getting help from family and friends, and the second study focused mostly on interaction with others in society, religious beliefs, and trust and reciprocity at school. The present study revealed that adolescents with high SC at

family and school were at less risk for suicide, and provided evidence that family and school SC were more important than the neighborhood in prevention of suicidal behavior in adolescents. Furthermore, the association with family SC was stronger than with school SC. There is need for future studies to focus more on different types and levels of SC in different types and areas of communities to broaden these findings.

4.4 Sexual behavior

Our focus was on self-esteem, PSS, and SC as protective mechanisms against inappropriate sexual behaviors among adolescents in Nepal. Our findings were similar to those from past studies, but one difference was that we observed a positive association between self-esteem and sexual behavior. In contrast, a previous study showed no association between self-esteem and sexual behavior (Kalina et al., 2009), and our findings were also contradicted by results from studies in Nigerian (Enejoh et al., 2016), Turkish (Karaman, 2013), American (Kerpelman et al., 2016), and Korean adolescents (Kim, 2011), which identified low self-esteem as the risk factor. Our finding of an association between higher self-esteem and inappropriate sexual behavior suggests that the role of self-esteem varies in different contexts. A possible explanation could be that adolescents with higher self-esteem are confident, take pride in themselves, and can make decisions (Rosenberg, 1965). Therefore, besides the positive effects, higher self-esteem may sometimes lead to risks in adolescents, who are exploratory, vulnerable, and in a transitional period of life (WHO, 2014, 2014a, 2018b; Learner & Steinberg, 2009). Our findings showed the double-edged sword effect of self-esteem on risk behavior, i.e., it has a negative effect on suicide behavior and substance use, but a positive effect on sexual behavior. Adolescents' self-esteem should be assessed; those with low self-esteem should be helped with their ability to prevent risk behavior, most importantly suicidal risk, while those with high self-esteem should be monitored and prevented from engaging in inappropriate sexual behavior. Considering the scarcity of evidence from past studies, our finding is novel and could be considered for future studies to explore this discrepancy, which might be due to differences in country contexts.

In the present study, a protective effect of PSS from parents against sexual risk-behavior was found in Salvadoran adolescents and boys from Mexico, and a

protective effect of PSS from parents and friends was observed in adolescents from Turkey (Springer et al., 2006; Reininger et al., 2012; Çakar & Tagay, 2017).

Regarding SC studies in developed countries including the US, Australia, and Europe reported that family and peer support, school environment, relationships and communication between student and teacher, and family and neighborhood SC were important factors for preventing risk-behavior, including sexual risk-behavior (Crosby et al., 2003; Magson et al., 2016; Currie et al., 2009). Indian study found that more sexual activity was associated with family factors like parent-child relationship and communication (Chhabra & Sodhi, 2012), which are the elements considered as family SC in the present study. However, we found that the overall effect of SC was influenced by the peer factor. Although past findings have suggested that family and school SC serve as control mechanisms for sexual behavior, we would add that peer influence weakens those mechanisms and should therefore be considered as a factor for promoting healthy sexuality among developing adolescents.

4.5 Conclusion

Self-esteem, PSS from family and friends, and SC at the family and school levels were protective against suicidal behavior; PSS from family and SC at the family level were negatively associated with adolescent substance use, however, none of these variables showed a protective effect for sexual behavior. In contrast, self-esteem was positively associated with sexual behavior. Although self-esteem was found to be protective for all risk behaviors in past studies, we found other contextual factors influenced the association between self-esteem and risk behaviors, especially influence by peers. Therefore, prevention of peer influence should be emphasized. Similarly, the role of community or neighbor might vary in different contexts. In conclusion, protective and risk factors identified in this study should be considered for preventive interventions at the family and school levels to ensure a better and safer transition into adulthood by preventing risk behaviors.

Chapter III, Impact of Parents' Knowledge about the Development of Self-Esteem in Adolescents and Their Parenting Practice on the Self-Esteem and Suicidal Behavior

In the context of highest suicidal ideation and higher suicidal plan and attempts of Nepalese adolescents amongst the nations of SEAR, the study 1 has found that, higher self-esteem is a strong protective factor against suicidal risk behavior of adolescents. However, a significant number of Nepalese adolescents (29.8%) have low self-esteem. Parents are the important resource and strongest source of influence for their children (Potts & Mandleco, 2011; Laursen & Collins, 2009; Baumrind & Thompson, 2002; Grusec, 2002). The parent child relation is the strongest of all human relation (Lerner et al., 2013; Bornstein, 2002), therefore, parents may contribute to the enhancement of self-esteem, prevention of suicides in adolescents and overall positive development. The health workers including nurses, psychologists can assess the level of adolescents' self-esteem, their suicidal ideation or plans, also can plan for counseling, positive parenting trainings and knowledge interventions to the parents on how to create or generate the protective factors for their adolescents. However, the parenting and suicidal behavior is least studied and notably, to the best of our knowledge there is no study in Nepal on parenting and mental health outcomes of adolescents i.e., self-esteem and suicidal behavior, and therefore, there was need to find out the exact area to be emphasized on parental counseling and intervention program in Nepalese context. In the given significance, study 2 is explained below, which was intended to find out the relationship between parents' knowledge of adolescents' self-esteem and their parenting, and the effect of parenting on self-esteem and suicidal behavior of adolescents as well.

1. LITERATURE REVIEW AND OBJECTIVES

1.1 Literature Review

Literature review explains about the brief summary on the findings from past studies on parenting and adolescents' self-esteem and suicidal behavior as below.

1.1.1 Parenting and Self-esteem of Adolescents

Past studies have showed that parental involvement helps in the development of competence and successful social interactions in children (Parke & Buriel, 2008), parental closeness and attachment make children and adolescents happy and

competent (Cummings & Cummings, 2002). Self-esteem is somehow related to the confidence, competence, feeling happy and worthy, and in this sense parental practices such as involvement, closeness, attachment etc. may have implications, but there is scarce of the study that comprehensively measured the parental practices specific to the development of self-esteem and its relation to adolescents' self-esteem level. On the other side, although some studies showed the relationship between adolescents self-esteem and parental support (McGee et al., 2000; Supple & Small, 2006; Sharaf et al., 2009), parental involvement (Akdemir et al., 2016; Handren et al., 2016) and good relation (Van De Bongardt et al., 2015; Smokowski et al., 2015), the understanding will be widen if several items included together in a study such as support, relation, communication, participation and involvement, and reinforcement etc. to see the effect on self-esteem of adolescents.

Regarding parenting style and self-esteem, there are some studies from US that showed authoritative parenting is beneficial (Heaven & Ciarrochi, 2008; McClure, et al., 2011; Milevsky et al., 2007), but another had contradicted (Supple & Small, 2006). Just a very few studies were available in other countries, and the findings were inconsistent to findings from the cultural context of US (Sharma & Pandey, 2015; Martínez et al., 2007). In this status, findings from these cited studies may not be implied as it is in Nepalese context. Therefore, considering these facts the study was needed on impact of parenting on Nepalese adolescents' self-esteem level. And it is also worthwhile including both the parenting style and parenting practice specifically related to adolescent's mental health and self-esteem.

1.1.2 Parenting and Suicidal Behavior of Adolescents

Review of the literatures suggested the fact that very rare study on adolescent's suicidal behavior and parenting have been done. The few available studies are almost from developed nations of west and not at all in the context of Nepal. For example, the five articles available to the researchers and four from developed nations such as, US, Germany, Czech, Lithuania (Cero & Shifers, 2013; Donath et al., 2014; Burešová et al., 2015; Zaborskis et al., 2016) and only one from the developing nation i.e., Jamaica (Smith & Moore, 2013). More importantly, the findings from these studies may not confirm the understanding and application in Nepalese context. Hence, the understanding of impact of parenting in Nepalese context will lead the

better way towards positive mental health which includes promotion of self-esteem and prevention of suicide risk in adolescents.

1.2 General Objective of the study

To find out the impact of parenting on adolescents' self-esteem and suicidal behavior

1.3 Specific Objectives of the study

To identify the association between parents' knowledge on adolescents' self-esteem and their parenting practice and parenting style

To assess the association of parents' knowledge about adolescents' self-esteem and their parenting with self-esteem of adolescents

To find out the association between parenting and suicidal risk behavior of adolescents.

1.4 Hypothesis of the Study

Parents knowledge on adolescents' self-esteem has positive association on their parenting.

Parents knowledge on adolescents' self-esteem, parenting practice and style has significant association with self-esteem of adolescents.

Parenting has significant association with suicidal behavior of adolescents

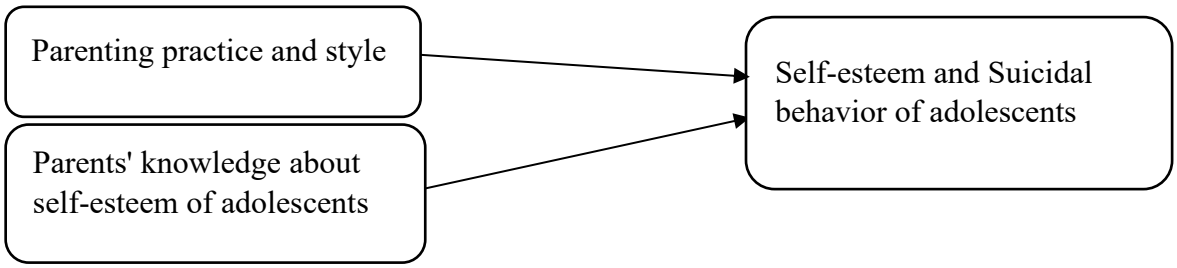


Fig. 6: Hypothesis model for analysis of relationship between independent and dependent variables of the study

2. RESEARCH METHODOLOGY

2.1 Research Design

The cross-sectional study design was adopted in this study.

2.2 Research Setting and Population

The study was conducted in Nepal. The study setting was the higher secondary schools of urban area of Nepal. The adolescent students (13 to 19 years old studying in classes nine to elven), and their parents (either father or mother) were the study population for this study.

2.3 Sampling and Participants

A multistage cluster sampling technique was used. Three provinces from the total of 7 provinces of the country were selected for this study: Province number 3 that included Kathmandu, the capital city of Nepal; Province number 4, which included the Kaski district and Pokhara that represented other middle urban areas; and Province number 5, which included the Palpa district and represented the smaller countryside urban areas of Nepal. According to the Ministry of Education (2017), the total number of higher secondary schools in Provinces 3, 4, and 5 was 978, 561, and 532, respectively. Hence, 3 schools (2 government and 1 private) from Kathmandu, 3 schools (1 government and 2 private) from Pokhara, and 2 schools (1 government and 1 private) from Palpa were selected. Classes 9-11 of those schools were the final clusters, and adolescents aged 13-19 years and their parents (who were available and willing to participate) were the participants in this study.

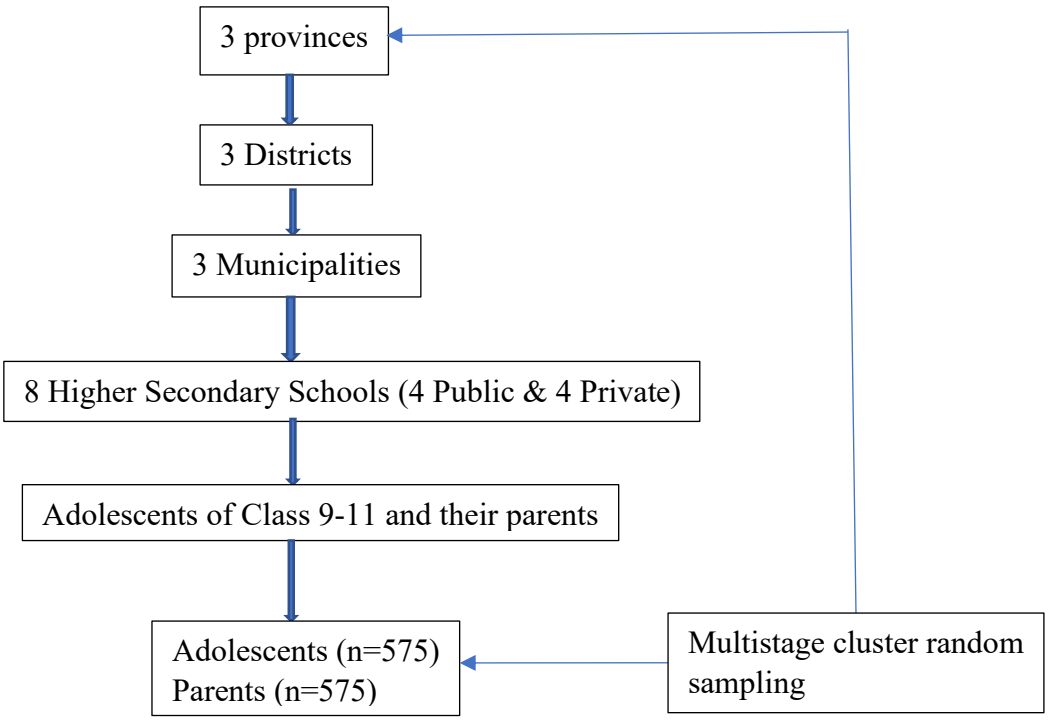


Fig. 7: Participant Selection Flow

2.4 Instrument

Two self-administered questionnaires (one for adolescents and one for their parents) were used in this study. Questionnaire for adolescents included the three parts as below.

Questions about socio-demographic variables

This included questions about personal information such as age, sex, education level, type of school, school district etc.

Rosenberg Self-esteem Scale

The Rosenberg Self-esteem Scale (RSES) was used to measure self-esteem levels of adolescents. This 10-item self-report measure consisted of 5 positively-worded and 5 negatively-worded items answered on a 4-point scale that ranged from 'strongly agree' (score: 3) to 'strongly disagree' (score: 0), with a total score that ranged from 0-30. A higher score indicates higher self-esteem.

Questions related to suicidal behavior

Questions were based on the CDC Youth Risk-Behavior Survey and a survey questionnaire for adolescents' risk-behavior in South Asia, including Nepalese adolescents (CDC, 2017; Aryal et al., 2017; WHO, 2017). Adolescents were asked three questions about suicidal thoughts, plans, or attempts in the previous 12 months, and the response for each item was dichotomized as yes or no, and coded as 1 for those who responded yes and 0 for no.

Questionnaire for parents included three parts as below.

Questions related to socio-demographic information, included questions about personal information such as age, sex, religion, ethnicity; education level, occupation, socio-economic status, marital status and type of family etc.

Questions related to knowledge on self-esteem, included 12 items in four-point likert scale, the score for each item ranged from 1 to 4 and the total score ranged from 12 to 48).

Questions related to parenting practice, was measured with 21 items in four-point scale the score for each item ranged from 1 to 4 with a total score ranging from 21 to 84. The items on parenting practice asked about positive reinforcement, open/honest communication, support, etc. (with items such as: usually sit together and maintain open communication with their child; try to be realistic and honest with their child; attend school events and meet schoolteachers; try to make the child feel proud by praising; family has talks and mealtimes together; try to make the child feel that his/her parents are there to help, etc.).

Questions related to parenting style, included total of 13 items which measured three types of parenting styles, namely, authoritarian, authoritative and indulgent rated on a five-point Likert scale, with the score on each item ranging from 1 to 5. There were 4 items on authoritarian parenting as strict parents (e.g., whenever my child shows disobedience, I scold and criticize him/her with bursting anger; I have little patience to tolerate any disobedience and have clear expectations); 5 items on authoritative parenting as democratic parents (e.g., I have set some appropriate rules for him/her and give friendly corrections whenever necessary; My child talks with me out of being punished after he/she has done something wrong); and 4 items on Indulgent parenting as laissez-faire parents or freedom-giving parents (e.g., I always threaten my child but do not actually punish him/her; My child is quite free and I do not have any demands or control). The range of total scores on the sections of the four-item authoritarian parenting, five-item authoritative parenting, and four-item indulgent parenting was 4–20, 5–25 and 4–20, respectively.

Validity and reliability of the Instrument

Questionnaire was generated on the basis of available literatures and the opinion from the experts was obtained. We had developed the questionnaire items regarding the parent's knowledge about the development of self-esteem in adolescents based on the following literatures: (Collins & Steinberg, 2008; Harter, 2008; Lerner & Steinberg, 2009; Potts & Mandleco, 2011; Rosenberg et al., 1995; Rosenberg, 1965; Cooley, 1998; Mead, 1934; Jessor, 2014); we had developed the items on parenting practice related to self-esteem based on the following literatures: (Rosenberg et al., 1995; Rosenberg, 1965; Bornstein, 2002; Darling & Steinberg, 1993; Smith & Moore, 2013; Jessor, 2014; McAdams et al., 2017; Van De Bongardt et al., 2015; Cripps & Zyromski, 2009; Smokowski, 2015; Shoshani & Steinmetz, 2013); and we had developed the items on parenting style based on the following literatures: (Hussain et al., 2011; Robinson et al., 1995; Shyny, 2017; Alonso-Stuyck, 2019; Aunola et al., 2000; Areepattamannil, 2010; Piko & Balázs, 2012; Glozah, 2014; Zuquetto et al., 2019; Heaven & Ciarrochi, 2013; Smith & Moore, 2013; Kerr et al., 2012; Abdul Gafor, 2014; Kern & Jonyniene, 2012; Pérez-Fuentes et al., 2019). The tool was developed in Nepali. Pretesting was performed on 96 adolescents and 64 parents who had similar characteristics as those of our study participants. Then,

modifications were made to make the questions easy to understand and answer. The final data showed good reliability. Cronbach alpha values were 0.89 for the knowledge questionnaire, 0.93 for parenting practice, and in the three parenting-style subscales, 0.63 for authoritarian, 0.78 for authoritative, and 0.68 for indulgent parenting. To ensure the validity of the tools, exploratory factor analysis with maximum likelihood ratio and varimax rotation was executed and found that all 12 items in the knowledge questionnaire had factor loadings of > 0.48 to 0.75 with a single component matrix. Similarly, the 21 items in the parenting practice questionnaire were also extracted in a single component matrix with factor loadings of >0.51 to 0.73. For parenting style, 5 items for authoritative (0.51 to 0.73), 4 items for authoritarian (0.37 to 0.76), and 4 items for indulgent parenting (0.44 to 0.68) were loaded.

2.5 Data Collection Procedure

Data from adolescents was collected in their classrooms of the respective schools. The researcher visited the students in their classrooms, explained the study, and obtained assent for participation in the study from the students. Students were asked to fill out the questionnaires and return them to the researcher. The students were asked to give to their parents a well-sealed envelope that contained a detailed explanation of the study, a consent form and questionnaire. The students were asked to bring back to school the questionnaires that their parents had filled out, in the subsequent two or three days. In the letter to the parents, a detailed explanation of the study was provided, and we asked either the adolescent's mother or father to fill out the questionnaire. Precautions were taken throughout the study at every step to safeguard the rights and welfare of all respondents, and they were assured that their identities will not be disclosed, and the information will be used only for this research purpose. The respondents were given full authority to withdraw their participation from the study without any fear at any time during the investigation. Anonymity was maintained by asking them not to write their names on the questionnaire; however, to match the adolescent's data with his/her parent's data, the same code number was used for the adolescent and his/her parent. A total of 934 questionnaires were distributed to the parents and 589 were returned (response rate, 63%). However, questionnaires

with missing answers were omitted, and 575 pairs (62%) of questionnaires from the adolescents and his/her parents were utilized in the final analysis.

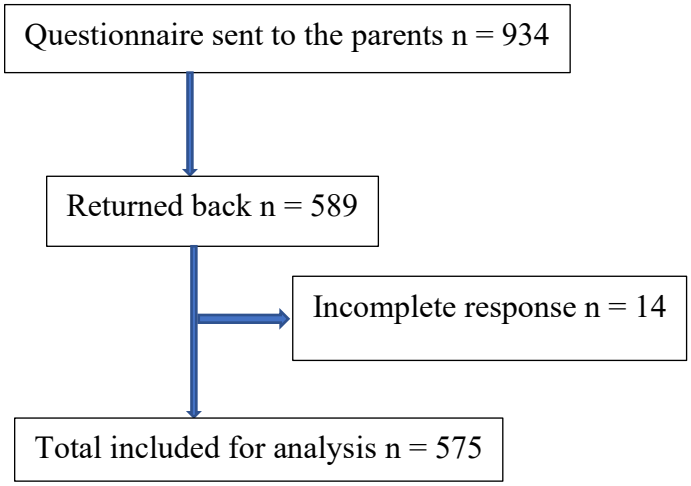


Fig. 8: Data Collection Flow

2.6 Data Analysis Procedure

Upon receipt of the questionnaire from each respondent, the questionnaire was checked for completeness and consistency. Careful attention was paid to the code number to match the questionnaires filled out by the adolescent and by his/her parent. Then data was analyzed and interpreted according to the objectives and the hypothesis of the study in SPSS version 26. Descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics (bivariate, multivariate logistic and linear regression analysis) was used at ≤ 0.05 level of significance. Before performing regression analysis, we confirmed the statistical assumption of normal distribution of the data with its kurtosis and skewness value (Kim, 2013). The present investigation was concerned with two outcome variables, i.e., self-esteem and suicidal behavior of adolescents, and their parents' knowledge about the development of self-esteem in adolescents, parents' practice and three parenting styles were the independent variables. We examined three hypotheses: (1) parents' knowledge about the development of self-esteem in adolescents positively predicts their parenting practice and positive parenting style, i.e., authoritative parenting style; (2) parents' knowledge about the development of self-esteem in adolescents, their parenting practice and authoritative parenting style positively predict the self-esteem of their adolescents; and (3) parents' practice and parenting style significantly predict suicidal behavior.

In the analysis, at the first step cross tabulation was used to describe sociodemographic factors, and the chi-squared test to study their association with the self-esteem level and suicidal behavior of their adolescent was used. Secondly, the relationship between parents' knowledge about the development of self-esteem, and parenting practice and three parenting styles were assessed with a single linear regression model. Similarly, the relationship between parent's knowledge about the development of self-esteem, practice and three parenting styles, and self-esteem score of adolescents was analyzed with a binary linear regression model. Thirdly, the relationship among the score of parenting practice and three parenting styles, and the suicidal behavior of adolescents was evaluated using a logistic regression model. Finally, these three crude models were adjusted for possible confounders.

3. RESULTS

A total of 575 pairs of adolescents and their parents were participants of the study, considering the completeness of the questionnaires (Table 5). The participation rate of mothers was higher than that of fathers (61% vs. 39%). The mean age of the adolescents and their parents was 15.82 years and 40.75 years, respectively. The number of girl student was higher than the boys, i.e., 56.2% and 43.8% respectively. Regarding ethnicity, 50.9% belonged to the Janajati ethnic group. Majority were belonged to Hindu religion (82.3%). In relation to the family type, participants from single family were 54.3%, i.e., characterized by the parents and their children are living together, whereas the joint family is marked by the family also include grandparents, uncle, aunt and cousins were 45.7%. About parents' education level, 52.2% had completed higher secondary and above level, and 47.8% were under the category of literate to secondary level. The majority of the parents that is, 90.3% were married and living together, only 9.7% were either widow/widower or divorced/separated. Furthermore, 62.3% reported their family income is sufficient for their livelihood, 12% had hardly sufficient and 25.7% reported they have some surplus/savings.

Male adolescents had a significantly higher self-esteem score than female adolescents. Adolescents whose families had higher SES had a significantly higher self-esteem score (Table 5). Although statistically not significant, the self-esteem score was higher among adolescents who belonged to the Brahmin/Chhetri ethnicity

(71.5%), among adolescents living in Palpa district (76%), among adolescents living with joint family (73.9%), and among adolescents whose parents live together (70.5%). The prevalence of suicidal risk behavior among the adolescents was 11.3% and was significantly higher among female adolescents than among male adolescents, and among adolescents who attended private schools than among those who attended government/public schools.

Table 5. Characteristics of the parents and adolescents according to the self-esteem level and suicidal risk behavior of the adolescents (n = 575).

Variables	Total		Self-Esteem Level		*P*	Suicidal Risk Behavior		*P*
	Number	%	Low (*n* = 172)	Normal-High (*n* = 403)		No (*n* = 510)	Yes (*n* = 65)	
Parents' characteristics								
Age								
≤40 years old	338	58.8	102 (30.2)	236 (69.8)	.869	299 (88.5)	39 (11.5)	.832
≥41 years old	237	41.2	70 (29.5)	167 (70.5)		211 (89.0)	26 (11.0)	
Mean ± SD (40.77 ± 6.31)								
Relation with child								
Father	226	39.3	67 (29.6)	159 (70.4)	.910	200 (88.5)	26 (11.5)	.903
Mother	349	60.7	105 (30.1)	244 (69.9)		310 (88.8)	39 (11.2)	
Ethnicity								
Brahmin/Chhetri	215	37.4	60 (27.9)	155 (72.1)	.718	189 (87.9)	26 (12.1)	.778
Janajati	293	50.9	91 (31.1)	202 (68.9)		260 (88.7)	33 (11.3)	
Others	67	11.7	21 (31.3)	46 (68.7)		61 (91.0)	6 (9.0)	
Religion								
Others	102	17.7	30 (29.4)	72 (70.6)	.903	89 (87.3)	13 (12.7)	.612
Hindu	473	82.3	142 (30.0)	331 (70.0)		421 (89.0)	52 (11.0)	
Province/District								
Province 3 Kathmandu	261	45.4	88 (33.7)	173 (66.3)	.168	234 (89.7)	27 (10.3)	.771
Province 4 Kaski	217	37.7	60 (27.6)	157 (72.4)		190 (87.6)	27 (12.4)	
Province 5 Palpa	97	16.9	24 (24.7)	73 (75.3)		86 (88.7)	11 (11.3)	
Type of family								
Single	312	54.3	103 (33.0)	209 (67.0)	.077	274 (87.8)	38 (12.2)	.470
Joint	263	45.7	69 (26.2)	194 (73.8)		236 (89.7)	27 (10.3)	
Education level (*n* = 548)								
Literate to secondary level	262	47.8	83 (31.7)	179 (68.3)	.391	235 (89.7)	27 (10.3)	.338
Higher secondary and	286	52.2	81 (28.3)	205 (71.7)		249 (87.1)	37 (12.9)	
Marital status								
Separated/Widow/Widower	56	9.7	19 (33.9)	37 (66.1)	.490	53 (94.6)	3 (5.4)	.139
Together	519	90.3	153 (29.5)	366 (70.5)		457 (88.1)	62 (11.9)	
Socio-economic status								
Hardly Sufficient	69	12.0	26 (37.7)	43 (62.3)	<.000*	62 (89.9)	7 (10.1)	.908
Sufficient	358	62.3	121 (33.8)	237 (66.2)		316 (88.3)	42 (11.7)	
Surplus	148	25.7	25 (16.9)	123 (83.1)		132 (89.2)	16 (10.8)	
Adolescents'								
Age								
13-15 years	268	46.6	78 (29.1)	190 (70.9)	.692	238 (88.8)	30 (11.2)	.938
16-19 years	307	53.4	94 (30.6)	213 (69.4)		272 (88.6)	35 (11.4)	
Mean ± SD (15.69 ± 1.31 years)								
Sex								
Male	252	43.8	62 (24.6)	190 (75.4)	.014*	234 (92.9)	18 (7.1)	.005*
Female	323	56.2	110 (34.1)	213 (65.9)		276 (85.4)	47 (14.6)	
Type of school								
Government/Public	365	63.5	119 (32.6)	246 (67.4)	.063	332 (91.0)	33 (9.0)	.024*
Private	210	36.5	53 (25.2)	157 (74.8)		178 (84.8)	32 (15.2)	

Number in parentheses indicates percentage. *Statistical significance at $p < 0.05$ on Chi-square test. Low self-esteem = score <15 on the Rosenberg Self-esteem Scale (RSES).

Table 6. Linear regression association between parents' knowledge about the development of self-esteem in adolescents and their parenting practice (n = 575).

	Parenting practice (communication, support, reinforcement, etc.)				**Authoritarian Parenting**				**Authoritative Parenting**				**Indulgent Parenting**			
	Unadjusted		Adjusted		Unadjusted		Adjusted		Unadjusted		Adjusted		Unadjusted		Adjusted	
	B	β	B	β	B	β	B	β	B	β	B	β	B	β	B	β
	95% CI		95% CI		95% CI		95% CI		95% CI		95% CI		95% CI		95% CI	
Parent's knowledge about the development of self-esteem in adolescents	1.0 (0.85, 1.08) **	0.56	1.0 (0.89, 1.11)**	0.59	0.01 (-0.03, 0.06)	0.02	0.02 (-0.03, 0.07)	0.03	0.18 (0.13, 0.23)**	0.27	0.20 (0.15, 0.25)**	0.30	0.03 (-0.03, 0.08)	0.04	0.05 (-0.01, 0.10)	0.07

** Significant $p = 0.000$; B, unstandardized coefficient; β, standardized coefficients beta; CI, confidence interval.
Adjusted, Adjusted for parent's age, sex, ethnicity, religion, family type, education, marital status, and socioeconomic status, adolescent's age, and adolescent's sex

The significant positive associations were observed between the score on parents' knowledge about the development of self-esteem in adolescents and the scores on their parenting practice and authoritative parenting (Table 6). Each increase in knowledge score was related to an increase in practice score (B = 1.0, 95% CI 0.89–1.11), and parents with higher knowledge about the development of self-esteem in adolescents were more likely to adopt the authoritative parenting style (B = 0.2, 95% CI 0.15–0.25).

Table 7. Linear regression association of parents' knowledge about the development of self-esteem in adolescents and parenting practice with the self-esteem level of the adolescents (n = 575).

Independent Variables	Mean (SE)	Self-Esteem Level of Adolescents									
		Unadjusted					Adjusted				
		B	β	*P*	LCI	UCI	B	β	*P*	LCI	UCI
Knowledge about the development of self-esteem in adolescents	40.47 (0.23)	0.051	0.073	0.082	−0.006	0.108	0.053	0.075	0.075	−0.005	0.111
Parenting practice (communication, support, reinforcement, etc.)	70.36 (0.39)	0.036	0.087	0.036*	0.002	0.069	0.024	0.058	0.174	−0.011	0.059
Authoritarian parenting	13.12 (0.13)	−0.050	−0.043	0.309	−0.146	0.046	−0.040	−0.034	0.424	−0.139	0.059
Authoritative parenting	19.71 (0.15)	0.125	0.121	0.004*	0.041	0.208	0.098	0.093	0.027*	0.011	0.186
Indulgent parenting	12.26 (0.15)	−0.024	−0.023	0.588	−0.112	0.063	−0.060	−0.055	0.191	−0.150	0.030

SE, standard error; B, unstandardized coefficient; β, standardized coefficients beta; * Significant $p = < 0.05$; LCI, lower limit of confidence interval; UCI, upper limit of confidence interval.
Adjusted, adjusted for parent's age, sex, ethnicity, religion, family type, education, marital status, socioeconomic status, adolescent's age, and adolescent's sex.
Adolescents' self-esteem score: 16.59 ± 0.16 (mean ± SE).

The mean score of self-esteem in the adolescents was 16.59 ± 0.16 (standard error) (Table 7). The mean scores of the following independent variables were: parents' knowledge 40.47, parenting practice related to adolescent's self-esteem 70.36, and three types of parenting style, i.e., authoritarian, authoritative, and indulgent, were 13.12, 19.71, and 12.26, respectively. Linear regression analysis revealed a significant bivariate association of the scores on parents' practice and authoritative parenting style with the adolescents' self-esteem score, but on multivariate analysis the score on parents' practice was confounded by two covariates, i.e., socioeconomic status and gender of the adolescent. Although the score on parents' knowledge about the development of self-esteem in adolescents was associated with the score on parenting practice, it did not show any association with the self-esteem score of the adolescents. However, the score on authoritative parenting showed a beneficial effect on the adolescent's self-esteem score after adjustment for several covariates related to the parents and adolescents (B = 0.1, 95% CI 0.11–0.18).

Table 8. Logistic regression odds ratios and 95% confidence intervals for factors predicting adolescents' suicidal behavior (n = 575).

Independent Variables	Suicidal Risk Behavior of Adolescents									
	Unadjusted					Adjusted				
	B	*p*	OR	LCI	UCI	B	*p*	OR	LCI	UCI
Parenting practice (communication, support, reinforcement, etc.)	−1.499	0.552	0.99	0.966	1.019	−3.075	0.628	0.99	0.964	1.022
Authoritarian parenting	−2.922	0.113	1.1	0.985	1.155	−4.621	0.041*	1.1	1.004	1.194
Authoritative parenting	−0.910	0.069	0.94	0.884	1.005	−2.482	0.136	0.95	0.885	1.017
Indulgent parenting	−1.674	0.377	0.97	0.903	1.040	−3.569	0.897	0.99	0.922	1.074

OR, odds ratio; B, unstandardized coefficient constant; * Significant $p = < 0.05$; LCI, lower limit of confidence interval; UCI, upper limit of confidence interval.
Adjusted, Adjusted for parent's age, sex, ethnicity, religion, family type, education, marital status, and socioeconomic status, adolescent's age, adolescent's sex, school district, and type of school.

The results of multivariate logistic regression analysis identified that the parental authoritarian style was a significant risk factor for suicidal behavior in the adolescents (AOR = 1.1, 95% CI 1.0–1.19) (Table 8). Although the scores on authoritative and indulgent parenting styles, and parenting practice showed inverse relationships with suicidal risk behavior, they were not significant statistically in adjusted model.

Table 9. Linear regression coefficients and level of significance of the factors associated with authoritative parenting (n = 575).

Parental Background Variables	Authoritative Parenting Style				
	B	β	*p*	LCI	UCI
Parent's age	−0.040	−0.066	0.112	−0.089	0.009
Relation with child					
Father (ref.)					
Mother	−0.175	−0.023	0.589	−0.812	0.461
Religion					
Others (ref.)					
Hindu	0.430	0.043	0.300	−0.383	1.244
Ethnicity					
Brahmin/Chhetri	0.267	0.034	0.415	−0.375	0.910
Janajati	−0.174	−0.023	0.584	−0.796	0.448
Others	−0.186	−0.016	0.706	−1.155	0.783
Family type					
Single (ref.)					
Joint	0.445	0.059	0.161	−0.178	1.069
Educational level					
Secondary and below (ref.)					
Higher secondary and above	−0.143	−0.019	0.653	−0.767	0.481
Mother's occupation *					
Home-maker	0.635	0.083	0.046*	0.012	1.258
Father's occupation					
Works at home/unemployed (ref.)					
Employed	0.214	0.014	0.741	−1.057	1.484
Economic status *					
Hardly sufficient	−1.242	−0.107	0.011*	−2.194	−0.291
Sufficient	0.211	0.027	0.519	−0.431	0.852
Surplus	0.427	0.049	0.238	−0.283	1.138
Marital status					
Widow/widower/separated/divorced (ref.)					
Married and living together	0.161	0.013	0.764	−0.888	1.210
Age of adolescent	0.003	0.001	0.983	−0.234	0.239
Sex of adolescent					
Male (ref.)					
Female	−0.151	−0.020	0.635	−0.778	0.475
School district*					
Kathmandu	−0.618	−0.081	0.052	−1.240	0.005
Kaski	−0.107	−0.014	0.743	−0.749	0.534
Palpa	1.271	0.126	0.003*	0.447	2.095
School type					
Government/Public (ref.)					
Private	−0.626	−0.080	0.057	−1.270	0.018

B, unstandardized coefficient; β, standardized coefficients beta; * Significant $p = < 0.05$; LCI, lower limit of confidence interval; UCI, upper limit of confidence interval, * significant factor.

Furthermore, in the univariate analyses for factors associated with authoritative parenting, significant relationships were found between economic status, occupation of mother, and area of residence/school district, and authoritative parenting (Table 9). Homemaker mothers were more likely to be authoritative with their child, whereas, if family income was hardly sufficient for livelihood, the parents in such homes were less likely to be authoritative. Regarding the school district, Palpa district is a small district with a small urban area in the hill region of Nepal that differs in terms of family structure, neighborhood and parents' occupation status from the other two districts. In Palpa district, most of the mothers stay at home and are

homemakers, and most families have their own agricultural land and grow their own crops; therefore, livelihood might easier in Palpa district compared with the livelihood of working parents who stay in rental properties in Kathmandu and Pokhara/Kaski. The parents in Palpa district were more authoritative than the parents in Kathmandu.

4. DISCUSSION AND CONCLUSION

In this study, we examined the effect of parenting according to the parents' report on the self-esteem and suicidal behavior of adolescents according to the adolescents' report. Furthermore, we used the SES as reported by the parents (which is considered to be a more appropriate and reliable approach than adolescents' report of their family's SES) as a covariate in the analysis of the relationship between parenting and adolescent outcome (i.e., their self-esteem and suicidal behavior). Nevertheless, given the strong tradition in Nepalese culture that favors boys over girls, and based on the reported evidence of higher rates of suicidal behavior and low self-esteem among adolescent girls in Nepal, it was also worthwhile to consider gender as another important covariate. Here, we would like to discuss our findings based on the outlined research questions, with important practical implications at the levels of the family/parents, school/public health nurses, psychologists, counselors and others who work in the arena in contributing to the mental health of adolescents. Most importantly, programs can be developed to provide effective counseling for the parents of adolescents, parenting training, and knowledge so that parents can enhance their adolescent's self-esteem and prevent suicides.

4.1 Self-esteem and Suicidal Behavior

In our study, the mean self-esteem score of adolescents was 16.59, which is similar to those obtained in previous studies in Nepal (Lamichhane, 2015; Maharjan, 2008). Further in line with the previous studies, we found that girls were more likely to have lower self-esteem than boys (Lamichhane, 2015; McClure et al., 2010; Herz & Gullone, 1999). The prevalence of suicidal behavior found in this study (11.3%) was similar to those found in previous studies (Thapa et al., 2017; WHO, 2017).

4.2 Association between Parents' Knowledge, and Parenting practice and style

Regarding our first research question as to whether parents' knowledge about the development of self-esteem in adolescents has a relationship with the parenting practice of parents, linear regression analysis proved our assumption that revealed that

the parenting practice score was significantly associated with the knowledge score; that is, parents with higher knowledge about the development of self-esteem in adolescents had a better practice score (on overall communication, relation, involvement, support, and positive reinforcement, i.e., appreciation, praise). Similarly, parents with higher knowledge about the development of self-esteem in adolescents were significantly more likely to practice an authoritative parenting style. In this regard, our findings on the relationship between knowledge and practice suggested that if parents have knowledge about the development of self-esteem in adolescents, they practice good communication and have a good relationship with their children, try to be supportive, practice positive reinforcement in the form of praise, appreciation and encouragement for good effort, and try to be more involved or participate in academic and other areas of their child's life. Parents with better knowledge about the developmental aspect of adolescents are likely to be more authoritative, i.e., have open bidirectional communication and respect the views of their child, involve the adolescent in decision making, set rules and make corrections in a mutual way, being less focused on punishment, and manage time to be engaged with his/her child and his/her academic and school activities, etc., as much as possible. Previous studies in different parts of the world showed that authoritative parents are more likely to encourage their children and engage in their school activities (Steinberg et al., 1992). Parental involvement (Akdemir, 2016; Handren et al., 2016), parental acceptance and support (McGee et al., 2000; Supple & Small, 2006; Sharaf et al., 2009), and having a good relationship with their children (Dwairy, 2004; Van De Bongardt et al., 2015; Smokowski et al., 2015) are beneficial for their children's self-esteem.

4.3 Association of Parenting Practice and style with Self-esteem of Adolescents

Our linear regression analysis also provided the answer to our second question, revealing that the authoritative style of parenting according to the parent's report was positively associated with their adolescent's self-esteem. Several past studies reported that adolescents who perceived that their parents are authoritative were significantly more likely to have higher self-esteem (Heaven & Ciarroch, 2008; Milevsky et al., 2007; McClure et al., 2010; Alami et al., 2014). With this finding, we could add to the extant literature that the parental report of their parenting style also has the same

beneficial effect as the parenting style perceived by adolescents in previous studies. Parents can contribute to the development of self-esteem in their adolescent children through authoritative parenting in Nepal as well. While another study showed that permissive parenting contributed more to the self-esteem of adolescents compared with authoritative parenting (Martínez et al., 2007), in the present study, permissive parenting did not show a beneficial effect on the self-esteem of Nepalese adolescents. Hence, this discrepancy may have been due to differences in the setting and context (Hoskins, 2014). Furthermore, although authoritative parenting had a beneficial effect as seen in most previous studies, it should be noted that the effect of SES followed by gender was also strong in the Nepalese context. In addition, while we explored factors associated with authoritative parenting, we observed significant associations between authoritative parenting and economic status, occupation of the mother, and area of residence. A past study in Turkey also provided partial support for the association between SES and perceived parenting style (Anli & Karsli, 2010). Parental goals and values of socialization of their children, and their expectations from the child may be different in different socio-economic strata, and parents of different SES may show different behaviors or create a different environment for their children. Parents of higher SES are more likely to be democratic and assertive (Hoskins, 2014; Hoff et al., 2002). Similarly, regarding mother's occupation, homemaker mothers may have more time to be involved and interact with her child. Compared to working mothers, homemaker mothers may have less job-related/dual career stress, and as such they may have a more positive approach with their child. According to this notion, to support this finding, past evidences have suggested that the parenting style in higher SES homes was found to be more democratic and accepting, and these parents' value self-direction in their children and exhibit more warmth and involvement, while in families with lower SES, working-class parents are more likely to be harsh, punitive, and oriented towards order and obedience, i.e., the authoritarian style (Hoff et al., 2002; Steinberg et al., 1992). Regarding the school district, parents in Palpa district were more authoritative compared to parents in Kathmandu and Kaski. Palpa is a hill/countryside small urban area of Nepal, whereas Kathmandu is the capital city and Kaski is the second largest city in Nepal after Kathmandu, and more parents are employed outside their home. On the other hand, compared to large cities, parents in

rural or small urban areas might have less expectations for their child about their future. This might be the reason that they are less likely to be harsh and punitive, and are more accepting. A future study should explore the exact cause of this difference.

We also found that the parenting practice score of parents (i.e., the total score derived from items such as communication, relationship, support, participation, appreciation, encouragement, etc.) was positively associated with the self-esteem score of their adolescents on bivariate analysis, but this was completely confounded by two variables, i.e., SES and gender, on multivariate analysis. Socioeconomic status had the stronger effect on this relationship. Therefore, it can be added that the SES and the environmental context might influence the goals, practice and style of parents because children do not grow and develop and the adult does not parent in isolation, but within the surrounding culture, economy and context (Hoff et al., 2002), and the effect of parenting is not universal but is dependent on culture and gender (Dwairy, 2004). It was also reported that adolescents perceive a difference in parenting by gender and SES (Anli & Karsli, 2010). Therefore, researchers should consider different cultures and contexts when studying the relationship between parenting and self-esteem of their children (Herz & Gullone, 1999). Past studies showed that adolescents who perceived that they had higher family SES had higher self-esteem (Bannink et al., 2016; Shoshani & Steinmetz, 2013), and our study also revealed that socioeconomic status mattered. On the other hand, a strong male-dominant social culture and religion still play a role in the difference in the rearing pattern of male and female children and the view of society in Nepal. Nepalese adolescents have high rates of health and social vulnerabilities and psychosocial problems, and they are especially higher among girls. Furthermore, the psychosocial well-being of adolescents is also affected by their SES in Nepal (Adhikari et al., 2016). Despite efforts to reduce gender inequality, women/girls in Nepal are still marginalized in society (e.g., discrepancy in the available roles, priorities, opportunities, and resources) which affects their health, development and well-being (MoHP, 2018). Another study on resilience in Nepalese adolescents indicated that one-fifth of the students had low resilience and girls had a lower total resilience score (Singh et al., 2019). Here, in this single cross-sectional study, with our main aim of how to promote self-esteem and prevent suicidal behavior in adolescents, we could not determine the

exact rationale for the effect of SES on parents' practice; thus, a future study should explore why this is the case. Currently, based on our findings, it can be said that although gender is not modifiable and SES is a complex factor, Nepalese parents can enhance their adolescent's self-esteem through authoritative parenting practice.

4.4 Association of Parenting with Adolescents' Suicidal Behavior

Thirdly, regarding the suicidal risk behavior of adolescents, our multivariate logistic regression analysis revealed that the parental authoritarian style was a significant risk factor for suicidal behavior in adolescents. Although none of the other variables (parents' practice, and authoritative and indulgent parenting styles) was a significant factor, the odds of those factors were in line with their protective effect. To our knowledge, there are a limited number of articles on the impact of parents on their adolescent's suicidal behavior; however, to support this finding a study in Jamaicans indicated that adolescents who reported that their parents are more authoritarian were more prone to suicide ideation and gender had a moderating effect (Smith & Moore, 2013). Among Lithuanian adolescents, some manifestations of suicidal behavior were significantly associated with low satisfaction with family relationships, low emotional support from their mothers and fathers, low monitoring by their mothers, low school-related parental support, and authoritarian-repressive parenting style of their fathers (Zaborskis et al., 2016). However, the results of the present study are in contrast with the results of the study from Germany (Donath et al., 2014) that reported that authoritarian parenting was not a significant predictor of suicide attempt among German adolescents; however, it should be noted that only ninth-grade adolescents were included in their study, and the difference in country context might have caused this discrepancy. The effect of parenting style or the perception of their parents' parenting style by adolescents could differ between developed and undeveloped nations (Donath et al., 2014; Spera, 2005). Moreover, a study in Czech adolescents of 11-16 years of age indicated that weak control and more warm relations can have a reducing effect on adolescent's self-harm behavior (Burešová et al., 2015); these are characteristics similar to the authoritative style of parenting. Similarly, another study in the US reported that both higher support and boundaries by parents for their children, which are also characteristics of authoritative parenting, were found to be protective against suicidal behavior among adolescent

students of 7th and 9th grades, and on top of this relationship, the self-esteem of the adolescents had a mediating effect (Cero & Sifer, 2013). Therefore, parents can lower suicidal risk in their adolescent children by enhancing their self-esteem through authoritative parenting while providing higher support and maintaining a good relationship with their adolescent children. However, our analysis did not prove the significant association of parental authoritativeness with reduction in suicidal risk behavior, although the odds were in line with a protective effect. Similar to previous studies, we established in the Nepalese context that authoritarian parenting is a risk factor for suicidal behavior. In support of our findings, studies on parenting and adolescent outcome have stated that parenting with high control and harsh parenting, i.e., the authoritarian parenting style, lead to negative outcomes in their adolescent children, such as depression, diminished academic success, and self-harm, while authoritative parenting has a beneficial effect (DeVore & Ginsburg, 2005; Alonso-Stuyck, 2019; Aunola et al., 2000; Areepattamannil, 2010; Steinberg et al., 1992; Piko & Balázs, 2012; Glozah, 2014; Zuquetto et al., 2019; Heaven & Ciarrochi, 2008; Milevsky etal., 2007; McClure et al., 2010; Hoskins, 2014; Supple & Small, 2006; Newman et al., 2008). Hence, our findings suggested that parents can prevent suicidal behavior in their adolescent children by reducing their authoritarian parenting style. Parents should focus on reducing negative criticism and punishment-oriented behavior towards their adolescent children; rather, they should focus on correction of any misbehavior by positive mutual communication and understanding, and by creating a less threatening environment. It seems that parents need to control their burst of anger and need to listen/analyze or better try to understand the rationale from the perspective of the child/adolescent if any problem, disobedience or breaking of set rules occurs. However, a future study to establish a cause–effect association and longitudinal studies to further support these findings are needed. The Freudian view is that adolescence is a period of emotional upheavals, Erikson's view is that adolescence is a period of identity crisis, and Jessor's view is that adolescence is a period of problem behavior associated with personal and multiple external factors. Although teenagers spend much more time with their peers than with their parents and may sometimes openly challenge their parents' actions and beliefs, still they value their relationships with their parents tremendously and adolescents are not always the

critical ones, but rather the ones to be molded (Erikson, 1959; Collins & Steinberg, 2008; Harter, 2008; Lerner & Steinberg, 2009; Potts & Mandleco, 2011; Cooley, 1998; Mead, 1934; Maccoby, 2000; Bornstein, 2002; Jessor, 2014). Therefore, parents should be counseled to help them understand the undeniable important fact that they are the best and most important resources for adolescent's positive development.

4.5 Conclusions

A significant number of adolescents in Nepal have low self-esteem and show suicidal risk behavior, although parents' knowledge about the development of self-esteem in adolescents was not significantly associated with the self-esteem level of the adolescents; however, parents with greater knowledge about the development of self-esteem in adolescents were significantly more likely to have better parenting practice, and more likely to adopt authoritative parenting. Importantly, authoritative parenting positively predicted their adolescent's self-esteem; on the other hand, authoritarian parenting was a risk factor for suicidal behavior. Study covariates such as SES and gender showed strong effects. Gender is not modifiable and SES is complex, but parents can contribute to the self-esteem of their adolescents by adopting an authoritative style, and by reducing their authoritarian parenting, parents can contribute to prevention of suicidal behavior. Hence, we conclude that parents can play a very effective role in promoting positive mental health in their adolescent children. School health nurses, community/public health nurses, psychologists, counselors and others who work in the area of adolescent mental health and development can focus on planning knowledge intervention, parenting training or counseling for the parents of adolescents.

Chapter IV, Final Conclusion, Limitation, and Implication

1. Conclusion

The study has shed lights on the significant and consistent protective association of self-esteem, PSS from family and friends, SC at family and school for suicidal behavior of adolescents. Similarly, adolescents with high family SC and PSS from family were less likely for substance use. Therefore, PSS and SC at family had the strong effect than the other sources of PSS and SC. On the other hand, self-esteem and sexual behavior are positively associated. Consistently, peer influence showed strong proportionate association with substance use and sexual behavior. Therefore, both the enhancement of protective factors and monitoring and helping adolescents from the influence of peers are important measures. Similarly, second study further added that the parents can contribute on enhancement of protective factor, i.e., parents can enhance self-esteem of their adolescents through authoritative parenting, and suicidal behavior can be prevented by reducing authoritarian parenting. Study has also provided the answers that, if parents have higher knowledge on adolescent's self-esteem, they are more likely to do better parenting practice (in terms of communication, support and reinforcement etc. to their adolescents), and parents with higher knowledge score were also more likely to be authoritative with their adolescents. Therefore, it is concluded that school or public health nurses or school health personnel or counselors can plan for intervention at two levels: adolescents and parent/family level. At adolescents' level, assessment of self-esteem, counseling for proper peer selection, and awareness activities in the adolescent group about risk behavior and its consequences can be done. In parental level, knowledge intervention about adolescent's mental health and development including self-esteem; positive parenting training focusing on the benefit of authoritative parenting and reducing authoritarian parenting, and counseling can be done. Therefore, family and school-peer level intervention for adolescents might be helpful to promote and generate protective factors and prevent the adolescents from risk behaviors.

2. Limitation

The study has some limitations to explain about, i.e., due to the cross-sectional design adopted for the study, causality cannot be determined. In addition, the study was conducted in urban high schools; therefore, the findings would not apply to the

understanding of adolescents and parents living in rural areas or adolescents who do not attend formal schools. The information was collected by self-report measure; therefore, the findings did not help in our understanding of illiterate parents, our understanding of those parents who did not respond to the questionnaire, and our understanding of those adolescents who were absent on the day of data collection or who did not completely fill out the questionnaire. Moreover, only either the adolescent's father or mother participated in the study, and there was a possible influence from the parent who did not participate in the study; therefore, a future study should consider collecting data from both parents as far as possible to gain a wider understanding. Furthermore, we included only those participants in which both the adolescent and his/her parent filled out the questionnaires completely because we needed to match the data of the adolescent with the data of his/her parent. Finally, though all the best efforts to get information on different levels of SC had been applied, the lack of a valid standard measure remains. So that future studies could consider the development and validation of a tool to measure SC in Nepalese context by referencing the present study.

3. Implication

The study has generated the information about risk-behaviors and the preventive role of self-esteem, different sources of PSS, and SC in adolescents. Study has further yielded information regarding parenting and adolescents' mental health outcome of self-esteem and suicidal behavior from the developing country context. Hence, the findings might have important practical implications for planning interventions and educational implications for different audiences (parents/families, teachers, school and community health nurses, communities, and others) in the areas of adolescent health and behavior. Our study would contribute to the literature on adolescents' risk-behaviors and role of parents in the context of Nepal. It would also supplement the existing international literature by filling the knowledge gap on sources of SC and PSS for multiple risk behaviors within the context of a developing country, and by measuring the influence of confounder effects. Going forward, this study will be helpful to students, researchers, and others who are interested in designing future studies in this area.

Supplementary Table 1. Logistic regression value of odds ratio and level of significance for the effect of Self-esteem on substance use, suicidal behavior and sexual behavior of adolescents controlling all other variables including demographic, SES, family and school factors (n = 943)

	Substance Use (Yes)						Suicidal Behavior (Yes)						Sexual behavior (Yes)					
	Crude Model			Adjusted Model			Crude Model			Adjusted Model			Crude Model			Adjusted Model		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
Self-esteem	**0.93**	**0.89**	**0.97**	**0.95**	**0.90**	**1.00**	**0.85**	**0.80**	**0.91**	**0.90**	**0.83**	**0.96**	**1.02**	**0.97**	**1.08**	**1.11**	**1.04**	**1.19**
Age				1.02	0.83	1.26				1.09	0.83	1.44				1.13	0.86	1.49
Sex (ref: Male)				0.59	0.38	0.91				3.35	1.75	6.39				0.33	0.18	0.60
Religion others (ref: Hindu)				0.85	0.47	1.54				1.69	0.85	3.38				1.20	0.59	2.47
Brahmin/Chhetri ethnicity (ref)																		
Janajati				0.85	0.55	1.31				0.88	0.48	1.60				0.62	0.35	1.10
Others				0.63	0.30	1.34				0.76	0.31	1.87				0.52	0.21	1.29
Joint Family (ref: single)				1.60	1.08	2.35				0.98	0.59	1.63				0.75	0.45	1.25
Family Income- Hardly sufficient (ref)																		
Sufficient				2.71	0.99	7.41				0.88	0.32	2.38				1.15	0.36	3.66
Surplus				3.66	1.28	10.48				0.79	0.27	2.34				0.97	0.28	3.32
Area of residence- Kathmandu/Province 3 (ref)																		
Pokhara/Province 4				0.93	0.56	1.56				1.21	0.62	2.34				2.88	1.46	5.65
Palpa/Province 5				0.57	0.30	1.06				0.93	0.40	2.17				0.74	0.29	1.87
Father education – illiterate (ref)																		
Literate				9.98	1.91	52.21				1.59	0.36	7.10				3.89	0.67	22.45
Do not know				5.32	0.88	32.14				1.07	0.18	6.35				3.17	0.44	22.82
Mother education - illiterate (ref)																		
Literate				0.72	0.35	1.45				0.98	0.37	2.60				0.87	0.33	2.29
Do not know				1.25	0.48	3.26				1.75	0.48	6.40				1.24	0.34	4.54
Mother- Home maker (ref: other)				0.88	0.58	1.32				0.66	0.38	1.14				0.75	0.44	1.28
Father employed (ref: not employed)				0.35	0.17	0.75				0.44	0.19	1.00				1.02	0.37	2.82
Family conflict-often (ref)																		
Sometimes				1.29	0.38	4.32				1.35	0.26	7.12				1.05	0.24	4.69
Never				0.84	0.24	2.95				0.83	0.15	4.63				0.48	0.10	2.30
Domestic violence often (ref)																		
Sometimes				0.51	0.12	2.19				0.55	0.10	3.08				0.48	0.08	2.89
Never				0.51	0.13	1.94				0.24	0.05	1.19				0.53	0.10	2.64
Feeling love and bonding with parents often (ref)																		
Sometimes				1.35	0.77	2.37				0.94	0.47	1.90				0.69	0.31	1.55
Never				0.50	0.13	1.91				0.68	0.13	3.59				1.17	0.25	5.62
Verbal/emotional abuse often (ref)				3.13	0.74	13.20				1.56	0.29	8.29				1.67	0.29	9.76
Sometimes				2.52	0.60	10.62				1.20	0.23	6.40				1.04	0.18	6.13
Never																		
Father substance use (ref: no)				1.31	0.85	2.00				1.04	0.59	1.85				0.82	0.47	1.44
Mother substance use (ref: no)				1.58	0.93	2.69				0.98	0.46	2.07				3.04	1.51	6.10
Sibling substance use (ref: no)				1.65	0.91	3.00				1.41	0.67	2.99				0.99	0.45	2.19
Grandparents substance use (ref: no)				1.22	0.80	1.85				1.49	0.87	2.56				0.89	0.50	1.59
Internet at home (ref: no)				0.78	0.51	1.20				1.08	0.61	1.92				1.38	0.78	2.44
Parental control/monitoring score				0.93	0.85	1.02				1.03	0.91	1.16				0.90	0.80	1.01
Private School (ref: government school)				1.89	1.13	3.17				2.43	1.21	4.90				0.86	0.43	1.73
Academic performance- second/third division (ref)																		
Distinction/first division				0.99	0.61	1.61				1.02	0.52	1.98				1.06	0.54	2.05
Feel not meet academic expectation (ref: no)				1.24	0.80	1.93				0.72	0.41	1.26				1.96	1.07	3.58
Friend substance use (ref: no)				2.38	1.54	3.67				1.81	0.98	3.32				2.14	1.22	3.75
Friends involvement in sexual behavior (ref: no)				1.06	0.57	1.96				1.60	0.73	3.50				5.14	2.65	9.99
Peer pressure (ref: no)				2.15	1.13	4.07				2.28	1.06	4.89				4.78	2.19	10.45
Teacher behave good (ref: no)				0.57	0.31	1.06				1.06	0.51	2.19				0.72	0.33	1.57
Teacher appreciate (ref: no)				1.43	0.78	2.64				0.49	0.25	0.97				3.16	1.35	7.41
Good relation between student and teacher (ref: no)				0.96	0.51	1.80				0.73	0.35	1.53				0.69	0.31	1.54
Strict school rules/monitoring (ref: no)				1.03	0.62	1.69				0.66	0.36	1.22				0.58	0.32	1.04
Substance offered/available at school territory (ref: no)				2.38	0.98	5.77				1.11	0.36	3.41				1.40	0.46	4.24

Model summary for Substance Use: -2 log likelihood ratio 719.409, Neglkerke R square 0.291, Chi-square 185.835, and degree of freedom 45, Suicidal behavior: -2 log likelihood ratio 464.065, Neglkerke R square 0.279, Chi-square 131.547, and degree of freedom 45, Sexual behavior: -2 log likelihood ratio 463.958, Neglkerke R square 0.450, Chi-square 258.892, and degree of freedom 45, respectively

Supplementary Table 2. Logistic regression value of odds ratio and level of significance for the effect of PSS from family on substance use, suicidal behavior and sexual behavior of adolescents controlling all other variables including demographic, SES, family and school factors (n = 943)

	Substance Use (Yes)						Suicidal Behavior (Yes)						Sexual behavior (Yes)					
	Crude Model			Adjusted Model			Crude Model			Adjusted Model			Crude Model			Adjusted Model		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
PSS from family	**0.93**	**0.90**	**0.95**	**0.95**	**0.91**	**0.98**	**0.92**	**0.89**	**0.95**	**0.95**	**0.91**	**0.99**	**0.95**	**0.92**	**0.97**	**0.98**	**0.93**	**1.03**
Age				1.01	0.82	1.24				1.06	0.81	1.40				1.15	0.87	1.51
Sex (ref: Male)				0.61	0.40	0.94				3.87	2.06	7.30				0.28	0.15	0.51
Religion others (ref: Hindu)				0.85	0.47	1.53				1.70	0.85	3.39				1.18	0.58	2.40
Brahmin/Chhetri ethnicity (ref)																		
Janajati				0.91	0.59	1.42				1.00	0.55	1.83				0.59	0.34	1.05
Others				0.66	0.31	1.40				0.81	0.33	2.02				0.57	0.23	1.39
Joint Family (ref: single)				1.55	1.05	2.28				0.94	0.56	1.55				0.79	0.48	1.32
Family Income- Hardly sufficient (ref)																		
Sufficient				2.76	1.00	7.60				0.83	0.31	2.27				1.02	0.32	3.22
Surplus				3.71	1.29	10.68				0.74	0.25	2.19				0.96	0.28	3.23
Area of residence- Kathmandu/Province 3 (ref)																		
Pokhara/Province 4				0.95	0.57	1.60				1.22	0.63	2.38				2.78	1.42	5.44
Palpa/Province 5				0.59	0.32	1.11				0.94	0.40	2.19				0.73	0.29	1.84
Father education – illiterate (ref)																		
Literate				9.95	1.89	52.24				1.80	0.38	8.48				3.36	0.61	18.66
Do not know				4.89	0.81	29.57				1.19	0.20	7.30				2.66	0.38	18.63
Mother education - illiterate (ref)																		
Literate				0.75	0.37	1.51				0.99	0.37	2.65				0.86	0.33	2.23
Do not know				1.36	0.52	3.55				1.75	0.48	6.34				1.22	0.34	4.40
Mother- Home maker (ref: other)				0.85	0.56	1.28				0.64	0.37	1.10				0.72	0.42	1.22
Father employed (ref: not employed)				0.35	0.16	0.76				0.44	0.19	1.02				1.17	0.43	3.20
Family conflict-often (ref)																		
Sometimes				1.38	0.40	4.78				1.31	0.24	7.08				1.49	0.32	6.84
Never				0.91	0.25	3.28				0.83	0.14	4.79				0.71	0.15	3.43
Domestic violence often (ref)																		
Sometimes				0.54	0.13	2.30				0.65	0.11	3.79				0.41	0.07	2.45
Never				0.54	0.14	2.01				0.28	0.05	1.48				0.44	0.09	2.17
Feeling love and bonding with parents often (ref)																		
Sometimes				1.32	0.75	2.31				0.95	0.47	1.91				0.68	0.31	1.49
Never				0.56	0.15	2.13				0.86	0.17	4.38				0.87	0.18	4.30
Verbal/emotional abuse often (ref)				3.21	0.76	13.65				1.66	0.30	9.08				1.93	0.30	12.39
Sometimes				2.69	0.63	11.41				1.38	0.25	7.57				1.31	0.20	8.47
Never																		
Father substance use (ref: no)				1.37	0.89	2.11				1.11	0.63	1.97				0.88	0.51	1.53
Mother substance use (ref: no)				1.57	0.92	2.67				0.99	0.47	2.07				2.51	1.26	4.97
Sibling substance use (ref: no)				1.68	0.92	3.04				1.41	0.67	2.96				0.99	0.45	2.19
Grandparents substance use (ref: no)				1.21	0.79	1.85				1.55	0.91	2.64				0.83	0.47	1.48
Internet at home (ref: no)				0.79	0.52	1.21				1.09	0.62	1.94				1.37	0.78	2.42
Parental control/monitoring score				0.94	0.86	1.03				1.03	0.92	1.17				0.92	0.82	1.03
Private School (ref: government school)				1.93	1.15	3.23				2.48	1.24	4.96				0.82	0.41	1.63
Academic performance- second/third division (ref)																		
Distinction/first division				1.03	0.63	1.69				1.09	0.55	2.14				1.16	0.61	2.23
Feel not meet academic expectation (ref: no)				1.33	0.86	2.06				0.81	0.47	1.40				1.63	0.91	2.92
Friend substance use (ref: no)				2.40	1.56	3.70				1.86	1.02	3.38				2.03	1.16	3.53
Friends involvement in sexual behavior (ref: no)				1.05	0.57	1.95				1.69	0.77	3.71				4.76	2.48	9.15
Peer pressure (ref: no)				2.12	1.12	4.02				2.31	1.07	4.97				3.88	1.81	8.33
Teacher behave good (ref: no)				0.60	0.32	1.12				1.12	0.53	2.34				0.80	0.37	1.76
Teacher appreciate (ref: no)				1.61	0.87	3.00				0.51	0.26	1.01				3.26	1.40	7.61
Good relation between student and teacher (ref: no)				0.93	0.50	1.74				0.70	0.33	1.50				0.73	0.34	1.59
Strict school rules/monitoring (ref: no)				1.10	0.66	1.81				0.72	0.39	1.32				0.61	0.34	1.09
Substance offered/available at school territory (ref: no)				2.14	0.88	5.19				0.92	0.30	2.81				1.50	0.49	4.58

Model summary for Substance Use: -2 log likelihood ratio 714.543, Neglkerke R square 0.298, Chi-square 190.701, and degree of freedom 45, Suicidal behavior: -2 log likelihood ratio 467.518, Neglkerke R square 0.272, Chi-square 128.093, and degree of freedom 45, Sexual behavior: -2 log likelihood ratio 472.496, Neglkerke R square 0.437, Chi-square 250.354, and degree of freedom 45, respectively.

Supplementary Table 3. Logistic regression value of odds ratio and level of significance for the effect of PSS from friends on substance use, suicidal behavior and sexual behavior of adolescents controlling all other variables including demographic, SES, family and school factors (n = 943)

	Substance Use (Yes)						Suicidal Behavior (Yes)						Sexual behavior (Yes)					
	Crude Model			Adjusted Model			Crude Model			Adjusted Model			Crude Model			Adjusted Model		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
PSS from friends	**0.94**	**0.92**	**0.97**	**0.97**	**0.94**	**1.00**	**0.93**	**0.90**	**0.96**	**0.96**	**0.92**	**0.99**	**0.94**	**0.91**	**0.96**	**0.96**	**0.92**	**1.00**
Age				1.01	0.82	1.24				1.07	0.81	1.41				1.15	0.87	1.52
Sex (ref: Male)				0.63	0.41	0.97				4.10	2.17	7.77				0.29	0.16	0.52
Religion others (ref: Hindu)				0.83	0.46	1.50				1.68	0.85	3.34				1.16	0.57	2.38
Brahmin/Chhetri ethnicity (ref)																		
Janajati				0.88	0.57	1.36				0.97	0.54	1.77				0.59	0.33	1.04
Others				0.62	0.29	1.33				0.75	0.30	1.88				0.54	0.22	1.34
Joint Family (ref: single)				1.56	1.06	2.30				0.93	0.56	1.55				0.80	0.48	1.32
Family Income- Hardly sufficient (ref)																		
Sufficient				2.85	1.04	7.86				0.88	0.32	2.39				1.04	0.33	3.30
Surplus				3.79	1.32	10.91				0.80	0.27	2.38				1.01	0.30	3.45
Area of residence- Kathmandu/Province 3 (ref)																		
Pokhara/Province 4				0.95	0.57	1.59				1.26	0.65	2.45				2.87	1.46	5.66
Palpa/Province 5				0.58	0.31	1.08				0.96	0.41	2.24				0.78	0.31	1.95
Father education – illiterate (ref)																		
Literate				10.63	2.00	56.43				1.69	0.36	8.00				3.24	0.59	17.88
Do not know				5.49	0.90	33.40				1.12	0.18	6.79				2.54	0.37	17.64
Mother education - illiterate (ref)																		
Literate				0.71	0.35	1.44				1.00	0.37	2.69				0.85	0.33	2.22
Do not know				1.27	0.49	3.29				1.80	0.50	6.49				1.22	0.34	4.41
Mother- Home maker (ref: other)				0.87	0.58	1.31				0.64	0.37	1.10				0.72	0.42	1.22
Father employed (ref: not employed)				0.34	0.16	0.73				0.43	0.19	0.97				1.16	0.42	3.21
Family conflict-often (ref)																		
Sometimes				1.17	0.35	3.89				1.08	0.22	5.37				1.45	0.31	6.70
Never				0.77	0.22	2.68				0.68	0.13	3.58				0.69	0.14	3.36
Domestic violence often (ref)																		
Sometimes				0.60	0.14	2.60				0.70	0.12	4.02				0.47	0.08	2.80
Never				0.59	0.15	2.25				0.31	0.06	1.58				0.48	0.10	2.35
Feeling love and bonding with parents often (ref)																		
Sometimes				1.36	0.78	2.39				1.00	0.50	2.00				0.67	0.30	1.47
Never				0.61	0.17	2.23				0.94	0.20	4.50				0.96	0.20	4.71
Verbal/emotional abuse often (ref)				3.16	0.75	13.32				1.74	0.32	9.52				1.90	0.31	11.68
Sometimes				2.56	0.61	10.78				1.40	0.26	7.63				1.31	0.21	8.05
Never																		
Father substance use (ref: no)				1.36	0.88	2.09				1.15	0.65	2.04				0.92	0.53	1.61
Mother substance use (ref: no)				1.61	0.95	2.75				0.96	0.45	2.03				2.49	1.25	4.94
Sibling substance use (ref: no)				1.62	0.89	2.93				1.35	0.64	2.84				0.99	0.45	2.18
Grandparents substance use (ref: no)				1.21	0.80	1.85				1.50	0.88	2.56				0.81	0.46	1.44
Internet at home (ref: no)				0.79	0.52	1.22				1.10	0.62	1.95				1.41	0.80	2.50
Parental control/monitoring score				0.94	0.86	1.03				1.03	0.92	1.16				0.92	0.82	1.04
Private School (ref: government school)				1.97	1.18	3.29				2.45	1.23	4.88				0.82	0.41	1.63
Academic performance- second/third division (ref)																		
Distinction/first division				1.02	0.62	1.66				1.07	0.54	2.09				1.18	0.62	2.28
Feel not meet academic expectation (ref: no)				1.30	0.84	2.00				0.77	0.44	1.33				1.59	0.88	2.85
Friend substance use (ref: no)				2.41	1.56	3.70				1.90	1.04	3.46				1.99	1.14	3.47
Friends involvement in sexual behavior (ref: no)				1.05	0.57	1.94				1.63	0.75	3.56				4.94	2.57	9.50
Peer pressure (ref: no)				2.21	1.17	4.19				2.43	1.14	5.22				3.81	1.79	8.14
Teacher behave good (ref: no)				0.56	0.30	1.05				1.03	0.50	2.13				0.78	0.36	1.68
Teacher appreciate (ref: no)				1.56	0.84	2.91				0.53	0.27	1.06				3.44	1.47	8.08
Good relation between student and teacher (ref: no)				0.92	0.49	1.71				0.68	0.32	1.43				0.76	0.35	1.66
Strict school rules/monitoring (ref: no)				1.07	0.65	1.76				0.69	0.38	1.26				0.63	0.35	1.12
Substance offered/available at school territory (ref: no)				2.30	0.95	5.57				0.98	0.32	2.96				1.56	0.50	4.84

Model summary for Substance Use: -2 log likelihood ratio 719.836, Neglkerke R square 0.290, Chi-square 185.408, and degree of freedom 45, Suicidal behavior: -2 log likelihood ratio 468.928, Neglkerke R square 0.269, Chi-square 126.683, and degree of freedom 45, Sexual behavior: -2 log likelihood ratio 470.182, Neglkerke R square 0.440, Chi-square 252.668, and degree of freedom 45, respectively.

Supplementary Table 4. Logistic regression value of odds ratio and level of significance for the effect of PSS from significant others on substance use, suicidal behavior and sexual behavior of adolescents controlling all other variables including demographic, SES, family and school factors (n = 943)

	Substance Use (Yes)						Suicidal Behavior (Yes)						Sexual behavior (Yes)					
	Crude Model			Adjusted Model			Crude Model			Adjusted Model			Crude Model			Adjusted Model		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
PSS from other significant persons	**0.97**	**0.94**	**0.99**	**1.00**	**0.96**	**1.03**	**0.96**	**0.93**	**0.99**	**0.97**	**0.93**	**1.01**	**0.96**	**0.94**	**0.99**	**0.99**	**0.95**	**1.03**
Age				1.01	0.82	1.25				1.08	0.82	1.42				1.15	0.88	1.52
Sex (ref: Male)				0.63	0.41	0.96				3.99	2.12	7.53				0.28	0.16	0.51
Religion others (ref: Hindu)				0.86	0.47	1.54				1.70	0.86	3.38				1.18	0.58	2.40
Brahmin/Chhetri ethnicity (ref)																		
Janajati				0.87	0.56	1.34				0.94	0.52	1.70				0.58	0.33	1.03
Others				0.63	0.30	1.34				0.75	0.30	1.86				0.54	0.22	1.33
Joint Family (ref: single)				1.57	1.07	2.31				0.96	0.58	1.59				0.80	0.48	1.32
Family Income- Hardly sufficient (ref)																		
Sufficient				2.78	1.01	7.63				0.82	0.30	2.22				1.00	0.32	3.16
Surplus				3.61	1.26	10.35				0.73	0.25	2.14				0.95	0.28	3.20
Area of residence- Kathmandu/Province 3 (ref)																		
Pokhara/Province 4				0.93	0.56	1.56				1.24	0.64	2.40				2.79	1.42	5.45
Palpa/Province 5				0.58	0.31	1.08				0.99	0.43	2.29				0.72	0.29	1.82
Father education – illiterate (ref)																		
Literate				10.33	1.95	54.60				1.66	0.36	7.74				3.44	0.62	19.06
Do not know				5.46	0.90	33.25				1.09	0.18	6.64				2.80	0.40	19.53
Mother education - illiterate (ref)																		
Literate				0.71	0.35	1.45				1.01	0.38	2.70				0.84	0.32	2.15
Do not know				1.25	0.48	3.26				1.79	0.49	6.47				1.15	0.32	4.13
Mother- Home maker (ref: other)				0.87	0.58	1.32				0.63	0.37	1.09				0.72	0.42	1.22
Father employed (ref: not employed)				0.34	0.16	0.73				0.42	0.19	0.97				1.15	0.42	3.17
Family conflict-often (ref)																		
Sometimes				1.14	0.34	3.79				0.99	0.20	4.85				1.37	0.30	6.19
Never				0.75	0.22	2.60				0.63	0.12	3.30				0.65	0.14	3.10
Domestic violence often (ref)																		
Sometimes				0.55	0.13	2.39				0.65	0.11	3.75				0.42	0.07	2.53
Never				0.56	0.15	2.15				0.31	0.06	1.57				0.46	0.09	2.27
Feeling love and bonding with parents often (ref)																		
Sometimes				1.42	0.81	2.48				1.04	0.52	2.07				0.67	0.30	1.48
Never				0.58	0.15	2.17				1.00	0.20	4.92				0.91	0.18	4.48
Verbal/emotional abuse often (ref)				3.17	0.76	13.29				1.75	0.33	9.36				1.86	0.30	11.66
Sometimes				2.48	0.59	10.41				1.33	0.25	7.13				1.25	0.20	7.84
Never																		
Father substance use (ref: no)				1.30	0.85	2.00				1.12	0.63	1.98				0.87	0.50	1.52
Mother substance use (ref: no)				1.63	0.96	2.78				1.01	0.48	2.12				2.57	1.30	5.08
Sibling substance use (ref: no)				1.63	0.90	2.96				1.38	0.66	2.90				0.98	0.44	2.15
Grandparents substance use (ref: no)				1.23	0.81	1.87				1.55	0.91	2.64				0.84	0.47	1.49
Internet at home (ref: no)				0.79	0.52	1.21				1.10	0.62	1.95				1.37	0.78	2.42
Parental control/monitoring score				0.93	0.85	1.02				1.04	0.92	1.17				0.92	0.82	1.03
Private School (ref: government school)				1.96	1.17	3.28				2.50	1.25	4.98				0.82	0.41	1.63
Academic performance- second/third division (ref)																		
Distinction/first division				0.97	0.60	1.59				1.05	0.54	2.05				1.14	0.60	2.19
Feel not meet academic expectation (ref: no)				1.32	0.85	2.04				0.78	0.45	1.35				1.62	0.90	2.90
Friend substance use (ref: no)				2.45	1.59	3.76				1.94	1.07	3.52				2.03	1.17	3.54
Friends involvement in sexual behavior (ref: no)				1.06	0.57	1.95				1.64	0.75	3.57				4.77	2.49	9.16
Peer pressure (ref: no)				2.23	1.17	4.24				2.35	1.10	5.04				3.95	1.84	8.47
Teacher behave good (ref: no)				0.55	0.30	1.03				1.04	0.50	2.15				0.76	0.35	1.63
Teacher appreciate (ref: no)				1.44	0.78	2.66				0.49	0.25	0.96				3.20	1.37	7.45
Good relation between student and teacher (ref: no)				0.92	0.49	1.71				0.68	0.32	1.44				0.73	0.34	1.59
Strict school rules/monitoring (ref: no)				1.04	0.63	1.71				0.68	0.37	1.24				0.60	0.33	1.07
Substance offered/available at school territory (ref: no)				2.27	0.94	5.50				1.02	0.34	3.08				1.55	0.51	4.71

Model summary for Substance Use: -2 log likelihood ratio for 722.578, Neglkerke R square 0.287, Chi-square 182.666, and degree of freedom 45, Suicidal behavior: -2 log likelihood ratio 470.958, Neglkerke R square 0.265, Chi-square 124.653, and degree of freedom 45, and Sexual behavior: -2 log likelihood ratio 472.988, Neglkerke R square 0.436, Chi-square 249.861, and degree of freedom 45, respectively.

Supplementary Table 5. Logistic regression value of odds ratio and level of significance for the effect of family SC on substance use, suicidal behavior and sexual behavior of adolescents controlling all other variables including demographic, SES, family and school factors (n = 943)

	Substance Use (Yes)						Suicidal Behavior (Yes)						Sexual behavior (Yes)					
	Crude Model			Adjusted Model			Crude Model			Adjusted Model			Crude Model			Adjusted Model		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
Family social capital	**0.82**	**0.76**	**0.88**	**0.83**	**0.75**	**0.93**	**0.78**	**0.72**	**0.86**	**0.80**	**0.70**	**0.92**	**0.88**	**0.81**	**0.96**	**0.87**	**0.75**	**1.01**
Age				1.02	0.82	1.26				1.11	0.84	1.47				1.15	0.87	1.51
Sex (ref: Male)				0.61	0.40	0.94				4.13	2.16	7.92				0.27	0.15	0.49
Religion others (ref: Hindu)				0.83	0.46	1.51				1.60	0.79	3.23				1.17	0.57	2.37
Brahmin/Chhetri ethnicity (ref)																		
Janajati				0.86	0.55	1.33				0.97	0.53	1.78				0.57	0.32	1.02
Others				0.67	0.32	1.42				0.80	0.32	2.01				0.58	0.24	1.42
Joint Family (ref: single)				1.59	1.08	2.35				0.99	0.59	1.65				0.81	0.49	1.34
Family Income- Hardly sufficient (ref)																		
Sufficient				3.01	1.09	8.26				0.91	0.33	2.48				1.12	0.35	3.54
Surplus				3.80	1.32	10.92				0.74	0.25	2.19				1.00	0.30	3.40
Area of residence- Kathmandu/Province 3 (ref)																		
Pokhara/Province 4				0.94	0.56	1.58				1.12	0.57	2.22				2.83	1.45	5.55
Palpa/Province 5				0.62	0.33	1.16				1.02	0.44	2.38				0.74	0.29	1.87
Father education – illiterate (ref)																		
Literate				10.24	1.88	55.88				1.68	0.34	8.17				3.64	0.64	20.59
Do not know				5.45	0.86	34.43				1.27	0.20	8.09				2.99	0.42	21.29
Mother education - illiterate (ref)																		
Literate				0.74	0.36	1.52				1.02	0.38	2.73				0.86	0.33	2.23
Do not know				1.20	0.45	3.19				1.53	0.42	5.65				1.12	0.31	4.06
Mother- Home maker (ref: other)				0.88	0.58	1.32				0.65	0.37	1.13				0.73	0.43	1.24
Father employed (ref: not employed)				0.33	0.16	0.71				0.40	0.17	0.93				1.10	0.41	2.96
Family conflict-often (ref)																		
Sometimes				1.41	0.41	4.86				1.42	0.27	7.51				1.63	0.35	7.61
Never				0.98	0.27	3.52				1.04	0.18	5.91				0.80	0.16	3.99
Domestic violence often (ref)																		
Sometimes				0.47	0.11	2.05				0.47	0.08	2.75				0.39	0.06	2.38
Never				0.47	0.12	1.84				0.21	0.04	1.09				0.42	0.08	2.15
Feeling love and bonding with parents often (ref)																		
Sometimes				1.04	0.57	1.90				0.73	0.35	1.54				0.52	0.22	1.22
Never				0.35	0.09	1.40				0.48	0.09	2.66				0.60	0.11	3.24
Verbal/emotional abuse often (ref)				3.48	0.82	14.81				2.30	0.42	12.44				1.90	0.30	12.04
Sometimes				3.04	0.71	13.08				1.98	0.36	10.96				1.38	0.22	8.85
Never																		
Father substance use (ref: no)				1.29	0.84	1.98				1.07	0.60	1.93				0.88	0.51	1.54
Mother substance use (ref: no)				1.65	0.97	2.81				1.05	0.50	2.21				2.59	1.31	5.11
Sibling substance use (ref: no)				1.64	0.89	2.99				1.33	0.63	2.80				0.98	0.44	2.16
Grandparents substance use (ref: no)				1.21	0.80	1.85				1.62	0.94	2.80				0.83	0.47	1.47
Internet at home (ref: no)				0.77	0.50	1.19				1.12	0.63	2.00				1.35	0.76	2.39
Parental control/monitoring score				0.97	0.88	1.06				1.07	0.94	1.20				0.94	0.83	1.05
Private School (ref: government school)				2.06	1.22	3.45				2.83	1.39	5.76				0.84	0.42	1.68
Academic performance- second/third division (ref)																		
Distinction/first division				1.08	0.66	1.76				1.09	0.56	2.14				1.27	0.66	2.45
Feel not meet academic expectation (ref: no)				1.34	0.87	2.08				0.86	0.49	1.51				1.65	0.92	2.96
Friend substance use (ref: no)				2.38	1.54	3.67				1.94	1.05	3.57				1.97	1.13	3.44
Friends involvement in sexual behavior (ref: no)				1.06	0.57	1.97				1.68	0.75	3.76				4.77	2.48	9.18
Peer pressure (ref: no)				2.31	1.21	4.41				2.52	1.15	5.53				4.10	1.91	8.80
Teacher behave good (ref: no)				0.57	0.31	1.07				1.06	0.51	2.23				0.80	0.37	1.74
Teacher appreciate (ref: no)				1.50	0.81	2.76				0.46	0.23	0.92				3.26	1.40	7.62
Good relation between student and teacher (ref: no)				0.91	0.48	1.70				0.72	0.34	1.52				0.71	0.32	1.55
Strict school rules/monitoring (ref: no)				1.05	0.63	1.74				0.68	0.37	1.26				0.61	0.34	1.10
Substance offered/available at school territory (ref: no)				2.23	0.90	5.48				0.93	0.29	2.94				1.52	0.50	4.60

Model summary for Substance Use: -2 log likelihood ratio 710.990, Neglkerke R square 0.302, Chi-square 193.408, and degree of freedom 45, Suicidal behavior: -2 log likelihood ratio 456.490, Neglkerke R square 0.286, Chi-square 134.261, and degree of freedom 45, Sexual behavior: -2 log likelihood ratio 469.418, Neglkerke R square 0.441, Chi-square 252.869, and degree of freedom 45, respectively.

Supplementary Table 6. Logistic regression value of odds ratio and level of significance for the effect of school SC on substance use, suicidal behavior and sexual behavior of adolescents controlling all other variables including demographic, SES, family and school factors (n = 943)

	Substance Use (Yes)						Suicidal Behavior (Yes)						Sexual behavior (Yes)					
	Crude Model			Adjusted Model			Crude Model			Adjusted Model			Crude Model			Adjusted Model		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
School social capital	**0.93**	**0.89**	**0.97**	**1.00**	**0.94**	**1.05**	**0.87**	**0.83**	**0.92**	**0.91**	**0.85**	**0.98**	**0.91**	**0.87**	**0.95**	**0.98**	**0.91**	**1.04**
Age				1.01	0.82	1.25				1.08	0.82	1.43				1.15	0.87	1.51
Sex (ref: Male)				0.62	0.41	0.95				3.79	2.01	7.12				0.28	0.16	0.51
Religion others (ref: Hindu)				0.86	0.48	1.54				1.70	0.85	3.39				1.17	0.57	2.38
Brahmin/Chhetri ethnicity (ref)																		
Janajati				0.87	0.56	1.34				0.95	0.52	1.73				0.58	0.33	1.03
Others				0.63	0.30	1.34				0.74	0.30	1.84				0.55	0.22	1.34
Joint Family (ref: single)				1.58	1.07	2.32				0.96	0.58	1.58				0.80	0.48	1.34
Family Income- Hardly sufficient (ref)																		
Sufficient				2.80	1.02	7.70				0.84	0.31	2.26				1.02	0.33	3.21
Surplus				3.61	1.26	10.36				0.72	0.24	2.11				0.94	0.28	3.17
Area of residence- Kathmandu/Province 3 (ref)																		
Pokhara/Province 4				0.94	0.56	1.56				1.36	0.70	2.65				2.82	1.44	5.51
Palpa/Province 5				0.58	0.31	1.08				1.02	0.44	2.35				0.74	0.29	1.86
Father education – illiterate (ref)																		
Literate				10.40	1.96	55.05				1.67	0.36	7.70				3.39	0.61	18.75
Do not know				5.49	0.90	33.47				1.17	0.20	6.90				2.79	0.40	19.34
Mother education - illiterate (ref)																		
Literate				0.71	0.35	1.45				0.98	0.36	2.66				0.83	0.32	2.15
Do not know				1.24	0.48	3.26				1.68	0.46	6.11				1.15	0.32	4.14
Mother- Home maker (ref: other)				0.88	0.59	1.32				0.64	0.37	1.11				0.72	0.42	1.22
Father employed (ref: not employed)				0.34	0.16	0.72				0.40	0.18	0.92				1.11	0.41	3.01
Family conflict-often (ref)																		
Sometimes				1.14	0.34	3.81				0.97	0.20	4.77				1.36	0.30	6.19
Never				0.76	0.22	2.62				0.65	0.12	3.43				0.65	0.14	3.13
Domestic violence often (ref)																		
Sometimes				0.55	0.13	2.38				0.62	0.11	3.48				0.44	0.07	2.64
Never				0.56	0.15	2.14				0.28	0.06	1.39				0.47	0.09	2.38
Feeling love and bonding with parents often (ref)																		
Sometimes				1.42	0.81	2.48				1.05	0.52	2.12				0.66	0.30	1.48
Never				0.57	0.15	2.12				0.87	0.17	4.31				0.90	0.18	4.40
Verbal/emotional abuse often (ref)				3.14	0.75	13.17				1.72	0.32	9.15				1.81	0.29	11.39
Sometimes				2.46	0.59	10.32				1.35	0.25	7.22				1.24	0.20	7.83
Never																		
Father substance use (ref: no)				1.29	0.85	1.98				1.11	0.63	1.96				0.88	0.50	1.53
Mother substance use (ref: no)				1.63	0.96	2.77				1.00	0.47	2.11				2.57	1.30	5.07
Sibling substance use (ref: no)				1.63	0.90	2.95				1.34	0.63	2.85				0.98	0.44	2.16
Grandparents substance use (ref: no)				1.23	0.81	1.86				1.50	0.88	2.57				0.83	0.47	1.47
Internet at home (ref: no)				0.79	0.51	1.20				1.00	0.56	1.78				1.34	0.76	2.37
Parental control/monitoring score				0.93	0.85	1.02				1.05	0.93	1.19				0.92	0.82	1.03
Private School (ref: government school)				1.96	1.17	3.28				2.74	1.36	5.53				0.83	0.42	1.67
Academic performance- second/third division (ref)																		
Distinction/first division				0.97	0.59	1.58				1.05	0.53	2.07				1.16	0.60	2.22
Feel not meet academic expectation (ref: no)				1.31	0.85	2.03				0.76	0.44	1.31				1.57	0.88	2.83
Friend substance use (ref: no)				2.45	1.60	3.77				1.90	1.04	3.45				2.02	1.16	3.52
Friends involvement in sexual behavior (ref: no)				1.06	0.57	1.95				1.60	0.73	3.51				4.79	2.50	9.20
Peer pressure (ref: no)				2.25	1.18	4.26				2.34	1.09	5.01				3.98	1.86	8.51
Teacher behave good (ref: no)				0.56	0.30	1.03				1.10	0.53	2.31				0.76	0.35	1.64
Teacher appreciate (ref: no)				1.43	0.78	2.64				0.49	0.25	0.98				3.25	1.39	7.61
Good relation between student and teacher (ref: no)				0.92	0.49	1.73				0.78	0.36	1.68				0.76	0.34	1.66
Strict school rules/monitoring (ref: no)				1.04	0.63	1.73				0.76	0.41	1.40				0.62	0.34	1.12
Substance offered/available at school territory (ref: no)				2.24	0.92	5.44				0.83	0.27	2.51				1.47	0.48	4.50

Model summary for Substance Use: -2 log likelihood ratio 722.283, Neglkerke R square 0.287, Chi-square 182.539 and degree of freedom 45, Suicidal behavior: -2 log likelihood ratio 466.777, Neglkerke R square 0.273, Chi-square 128.627 and degree of freedom 45, Sexual behavior: -2 log likelihood ratio 472.582, Neglkerke R square 0.436, Chi-square 249.987 and degree of freedom 45, respectively.

Supplementary Table 7. Logistic regression value of odds ratio and level of significance for the effect of Neighborhood SC on substance use, suicidal behavior and sexual behavior of adolescents controlling all other variables including demographic, SES, family and school factors (n = 943)

	Substance Use (Yes)						Suicidal Behavior (Yes)						Sexual behavior (Yes)					
	Crude Model			Adjusted Model			Crude Model			Adjusted Model			Crude Model			Adjusted Model		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
Neighborhood social capital	**0.91**	**0.85**	**0.98**	**0.96**	**0.90**	**1.03**	**0.91**	**0.85**	**0.98**	**0.97**	**0.89**	**1.06**	**0.97**	**0.91**	**1.03**	**1.01**	**0.92**	**1.10**
Age				1.01	0.82	1.24				1.08	0.82	1.43				1.16	0.88	1.52
Sex (ref: Male)				0.62	0.40	0.94				3.91	2.07	7.38				0.29	0.16	0.52
Religion others (ref: Hindu)				0.84	0.46	1.51				1.67	0.84	3.34				1.19	0.58	2.44
Brahmin/Chhetri ethnicity (ref)																		
Janajati				0.88	0.57	1.36				0.94	0.52	1.72				0.58	0.33	1.02
Others				0.63	0.30	1.34				0.75	0.30	1.86				0.54	0.22	1.33
Joint Family (ref: single)				1.57	1.07	2.31				0.97	0.59	1.60				0.80	0.48	1.33
Family Income- Hardly sufficient (ref)																		
Sufficient				2.83	1.03	7.76				0.84	0.31	2.25				1.02	0.32	3.22
Surplus				3.61	1.26	10.34				0.71	0.24	2.08				0.96	0.28	3.24
Area of residence- Kathmandu/Province 3 (ref)																		
Pokhara/Province 4				0.96	0.57	1.60				1.25	0.64	2.41				2.73	1.40	5.34
Palpa/Province 5				0.60	0.32	1.11				0.99	0.43	2.28				0.70	0.28	1.76
Father education – illiterate (ref)																		
Literate				10.77	2.02	57.32				1.66	0.36	7.73				3.48	0.62	19.34
Do not know				5.66	0.93	34.59				1.13	0.19	6.83				2.88	0.41	20.09
Mother education - illiterate (ref)																		
Literate				0.69	0.34	1.40				0.98	0.36	2.63				0.85	0.33	2.20
Do not know				1.20	0.46	3.13				1.70	0.47	6.15				1.15	0.32	4.16
Mother- Home maker (ref: other)				0.87	0.58	1.30				0.65	0.38	1.11				0.73	0.43	1.23
Father employed (ref: not employed)				0.34	0.16	0.72				0.41	0.18	0.93				1.13	0.41	3.05
Family conflict-often (ref)																		
Sometimes				1.19	0.36	3.97				1.04	0.21	5.15				1.36	0.30	6.15
Never				0.80	0.23	2.79				0.65	0.12	3.45				0.64	0.13	3.07
Domestic violence often (ref)																		
Sometimes				0.54	0.12	2.36				0.59	0.11	3.33				0.42	0.07	2.48
Never				0.57	0.15	2.19				0.28	0.06	1.40				0.44	0.09	2.22
Feeling love and bonding with parents often (ref)																		
Sometimes				1.41	0.81	2.47				1.06	0.53	2.13				0.67	0.30	1.48
Never				0.55	0.15	2.07				0.83	0.17	4.13				0.89	0.18	4.39
Verbal/emotional abuse often (ref)				3.14	0.75	13.15				1.79	0.34	9.54				1.79	0.29	11.00
Sometimes				2.48	0.59	10.37				1.36	0.25	7.28				1.20	0.20	7.37
Never																		
Father substance use (ref: no)				1.31	0.85	2.00				1.07	0.60	1.88				0.87	0.50	1.50
Mother substance use (ref: no)				1.60	0.94	2.73				1.02	0.49	2.13				2.61	1.32	5.17
Sibling substance use (ref: no)				1.66	0.92	3.02				1.36	0.65	2.85				0.97	0.44	2.13
Grandparents substance use (ref: no)				1.23	0.81	1.87				1.52	0.89	2.59				0.84	0.48	1.49
Internet at home (ref: no)				0.79	0.52	1.21				1.08	0.61	1.91				1.37	0.77	2.41
Parental control/monitoring score				0.94	0.86	1.03				1.03	0.91	1.16				0.91	0.81	1.02
Private School (ref: government school)				1.97	1.18	3.29				2.53	1.27	5.05				0.81	0.41	1.62
Academic performance- second/third division (ref)																		
Distinction/first division				0.98	0.60	1.60				1.02	0.52	1.98				1.14	0.60	2.19
Feel not meet academic expectation (ref: no)				1.30	0.84	2.01				0.78	0.45	1.36				1.64	0.91	2.94
Friend substance use (ref: no)				2.47	1.60	3.80				1.98	1.09	3.60				2.02	1.16	3.51
Friends involvement in sexual behavior (ref: no)				1.06	0.58	1.96				1.66	0.76	3.62				4.78	2.49	9.18
Peer pressure (ref: no)				2.22	1.17	4.21				2.40	1.11	5.16				4.04	1.89	8.64
Teacher behave good (ref: no)				0.57	0.31	1.05				1.01	0.49	2.09				0.75	0.35	1.61
Teacher appreciate (ref: no)				1.45	0.79	2.68				0.48	0.24	0.94				3.13	1.34	7.30
Good relation between student and teacher (ref: no)				0.91	0.49	1.70				0.70	0.33	1.50				0.73	0.34	1.60
Strict school rules/monitoring (ref: no)				1.06	0.64	1.74				0.68	0.37	1.24				0.59	0.33	1.06
Substance offered/available at school territory (ref: no)				2.19	0.90	5.32				0.94	0.31	2.84				1.54	0.51	4.66

Model summary for Substance Use: -2 log likelihood ratio 721.432, Neglkerke R square 0.288, Chi-square 183.812, and degree of freedom 45, Suicidal behavior: -2 log likelihood ratio 472.590, Neglkerke R square 0.262, Chi-square 123.021, and degree of freedom 45, Sexual behavior: -2 log likelihood ratio 473.144, Neglkerke R square 0.436, Chi-square 249.706, and degree of freedom 45, respectively

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Letter to School

Okayama Prefectural University
Okayama, Japan

To, Date:
The Principal
……School
Subject: Request for data collection
Dear Sir/Madame,

Namaskar, I (Ratna Shila Banstola) would like to state that I am Nursing Instructor in TU, IOM, Pokhara Campus, Nepal and now the doctorate nursing student in Okayama Prefectural University (OPU), Japan. As per the requirement of doctorate degree I have to conduct a research study which is entitled as "Risk Behavior among Adolescents in Nepal", therefore I would like to request for your cooperation and support from your facility by permitting to collect the data among adolescents of classes 9 to 11. The data collection will be done through self-administered questionnaire and it will take around 25 to 30 minutes. The study has also aimed to assess the impact of parents' knowledge and practice on adolescents' self-esteem and risk behavior, therefore an envelope with information about research study to obtain consent from parents for the parent and their child's participation in the study and a questionnaire for the parents will be sent with the students to their parents. There is no foreseeable risk for the adolescents and their parents and the participation in the study is fully voluntary. Anonymity and confidentiality of the participants will be maintained and the identity of the individual student or the school will not be revealed in any way. The collected data will be used for the research purpose only and the result of the study will be made available to the concerned school too. If you have any queries you can contact to the investigator at any point of time in the contact information attached below. We would like to thank you for your continued understanding and cooperation; and express our deep appreciation for the extraordinary expense and support.

Thank You so much.

Investigator: Ratna Shila Banstola
Instructor, TU, IOM, Pokhara Campus
Doctorate student, Graduate School of Health and Welfare Science, OPU
Email: bastolaratna1@gmail.com
Phone No: 9846056924

Coinvestigator: Dr. Sachiko Inoue
Associate Professor
Faculty of Health and Welfare Science
OPU, Soja, Japan

Assent from Adolescents

Okayama Prefectural University
Okayama, Japan

Research title: Risk Behavior among Adolescents in Nepal

Name of the Researcher: Ratna Shila Banstola

Date:……..

Namaskar, I am Ratna Shila Banstola (Nursing Instructor in TU, IOM, Pokhara Campus, Nepal; now the doctorate nursing student in Okayama Prefectural University [OPU], Japan). I am here for a study entitled above for the partial fulfillment of the requirement of doctorate degree. The objective of the study is to identify the risk behavior among urban high school adolescents. Your participation in the study is important for achieving this objective and the study findings will be helpful to plan preventive interventions, which will be the important merit of this study. Therefore, I would like to request you for the participation. The study involves no foreseeable risks or harm to you. Your participation in the study is fully voluntary as none of you are forced in any means. If you decide to participate, the questionnaire will be given to you. If you do not want to participate or do not want to continue you can quit at any time. In the questionnaire you will be asked about socio-demographic, family, friends and school related information; social support; self-esteem and risk behavior. There is no need to write your name in the questionnaire and all your information will be kept confidential. So that I hope you will help by providing true information in the questionnaire. It will take 25 to 30 minutes to answer the questions. The result of the study will be published in the journals or presented on conferences; however, your identity will not be revealed to anybody else. I would like to state that this study is self-funded, and there is no payments or gifts for you.

If you have any questions you can ask now or if later you can contact at any time to the investigator in following address or phone number.

If you have understood about the purpose of the study and would like to participate, please give your assent below with check mark on agree or if you do not want to participate do check mark on do not agree.

Agree to participate:
Do not agree to participate:
Name:
Class:
Date:

Thank you.

Investigator: Ratna Shila Banstola
Nursing Instructor, TU, IOM, Nepal
Doctorate student,Graduate School of Health and Welfare Science, OPU
Email: bastolaratna1@gmail.com
Phone No: 9846056924

Co-investigator: Dr. Sachiko Inoue
Associate Professor
Faculty of Health and Welfare Science
OPU, Soja, Japan.

Letter to Parent for Adolescents' Participation

Okayama Prefectural University
Okayama, Japan

Research title: Risk Behavior among Adolescents in Nepal
Name of the Researcher: Ratna Shila Banstola
Date:……..

Dear Parents

Namaskar, I am Ratna Shila Banstola (Nursing Instructor in TU, IOM, Nepal; now the doctorate nursing student in Okayama Prefectural University [OPU], Japan). I am writing to ask your permission for your child to participate in the study entitled above, which is planned for the partial fulfillment of the requirement of doctorate degree. The objective of the study is to identify the risk behavior among urban high school adolescents, so that the findings will be helpful to plan preventive interventions and this will be the important merit of the study. To participate, your child needs to answer the questionnaire, which is about socio-demographic, family, friends and school; social capital; social support; self-esteem; and risk behavior related information. It will take around 25 to 30 minutes to answer the questions. The study involves no foreseeable risks or harm. There is no need to write your child's name in the questionnaire and all the information will be kept confidential. The result of the study will be published in the journals or presented on conferences by the researcher. However, the identity of participants will not be revealed to anybody else. The participation in the study is fully voluntary. Although your child will be asked to give their assent to participate, your permission for participation is very important. Therefore, I would like to request you to kindly consider on this. The study is self-funded. There is no payments or gifts for the participation.

If you are happy to permit your child to participate in the study, please sign the consent sheet attached here with.

If you have any questions you can contact the investigator at any time in the contact given below. Your cooperation will be highly appreciated.

Thank you.

Investigator: Ratna Shila Banstola
Nursing Instructor, TU, IOM, Nepal
Doctorate student,Graduate School of Health and Welfare Science, OPU
Email: bastolaratna1@gmail.com
Phone No: 9846056924

Co-investigator: Dr. Sachiko Inoue
Associate Professor
Faculty of Health and Welfare Science
OPU, Soja, Japan.

Parents' consent for Adolescents' Participation

CONSENT FORM

Research title: Risk Behavior among Adolescents in Nepal

Name of the Researcher: Ratna Shila Banstola

I agree to take part in the study and I voluntarily consent for participation of my adolescent child in this study. I understand that our data will be used for research purpose only and it will be anonymized. The study result will be presented in the scientific conferences or published as article but participants' identity will not be revealed in any way. I understand that we are free to decline to participate or we may withdraw participation at any point.

Name of Parent/Guardian:

Signature: _____ Date _____

Researcher name:

Signature: _____ Date _____

Thank you.

Information to Parents for their Participation

Okayama Prefectural University
Okayama, Japan

Research title: Impact of Parents' Knowledge and Practice on Self-esteem and Risk-behavior of Adolescents in Urban High Schools in Nepal

Name of the Researcher: Ratna Shila Banstola

Date:……..

Namaskar, I am Ratna Shila Banstola (Nursing Instructor in TU, IOM, Pokhara Campus Nepal; now the doctorate nursing student in Okayama Prefectural University [OPU], Japan). I am here for the study entitled above as a partial fulfillment of the requirement of doctorate degree. The objective of the study is to identify the impact of parents' knowledge and practice on self-esteem and risk behavior of adolescents. So that intervention programs can be planned and this will be the important merit of the study. Therefore, I would like to request for your participation. The study involves no foreseeable risks or harm to you. Your participation is fully voluntary. The participants in the study need to answer the questionnaire, in which the information about socio-demographic characteristics; your knowledge on adolescents' self-esteem and practice to your adolescent children are asked. It will take around 20 minutes to answer these questions. There is no need to write your name in the questionnaire and all your information will be kept confidential. The result of the study will be published in the journals or presented on conferences however, your identity will not be revealed to anybody else. The study is self-funded and there is no gift for the participants.

If you are happy to take part in this study, please sign the consent sheet attached and please answer the questionnaire that is given to you. Either of the parent can fill the questionnaire.

If you do not want to participate or do not want to continue you can quit at any time. Your participation will be highly appreciated. If you have any questions you can contact the investigator at any time in the contact given below.

Thank you so much.

Investigator: Ratna Shila Banstola
Nursing Instructor, TU, IOM, Nepal
Doctorate student,Graduate School of Health and Welfare Science, OPU
Email: bastolaratna1@gmail.com
Ph. No.: 9846056924

Co-investigator: Dr. Sachiko Inoue
Associate Professor
Faculty of Health and Welfare Science
OPU, Soja, Japan.

Consent for parents' Participation

CONSENT FORM

Research title: Impact of Parents' Knowledge and Practice on Self-esteem and Risk-behavior of Adolescents in Urban High Schools in Nepal

Name of the Researcher: Ratna Shila Banstola

I agree to take part in the study and I voluntarily consent to participate. I understand that our data will be used for research purpose only and it will be anonymized. The study result will be presented in the scientific conferences or published as article but participants' identity will not be revealed in any way. I understand that we are free to decline to participate or we may withdraw participation at any point.

Participant name:

Signature: _____ Date _____

Researcher name:

Signature:_____ Date _____

Thank you.

Withdrawal Form

WITHDRAWAL FROM RESEARCH CONSENT

Ms. Ratna Shila Banstola

I agreed to participate in the study entitled "Impact of Parents' Knowledge on Self-esteem of adolescents and Practice on Self-esteem and Risk-behavior among Adolescents of Urban High Schools in Nepal" and signed a consent form previously, but now I have chosen to withdraw from participation.

Using this form, I am asking you to document my decision to withdraw from this research.

_____

Participant's Name

_____ _____

Signature of Participant Date

_____ _____

Signature of Person Obtaining Consent Date

Thank you.

Questionnaire for Adolescents

Questionnaire on Self-esteem, Perceived Social Support, Social Capital and Risk behavior of Adolescents

Objective of the questionnaire: To obtain information regarding self-esteem, social support, social capital and risk behavior of adolescents along with socio-demographic and social context (family, friends, and school) related information of adolescents.
Direction: You are requested to express some of your background information, feeling and experiences through this questionnaire. Please tick (√) mark your answer or write your answer in the space provided.
Code No…… School Name:……. Grade:……
Date:……

Socio-demographic and Social Context Related Information

1. Age:……..completed years
2 Sex: A. Male B. Female
3 Religion:
A. Hindu B. Buddhist C. Muslim D. Christian
E. Others(Specify)……
4. Ethnicity/ Surname::……
5 Family Type: A. Nuclear B. Joint
6 Father's educational status:
A. No education B. Read and write only B. Primary C. Secondary D. Higher secondary
E. College/University level F. Do not know
7 Mother's educational status:
A. No education B. Read and write only B. Primary C. Secondary D. Higher secondary
E. College/University level F. Do not know
8 What is your father's current occupation? …….
9 What is your mother's current occupation? …….
10 How sufficient is your family income to manage daily expenses of livelihood?
A. Hardly sufficient B. Sufficient C. Surplus
11 How do you feel about the socioeconomic status of your family in reference to your friends/neighbor?
A. High B. Medium C. low
12 How is the marital status of your parents?
A. Both alive and staying together B. Both alive but separated/divorced
C. Father not alive D. Mother not alive
E. Both not alive

Social Context

1 Is there conflict in your family?

A. Most often B. Sometimes only C. Never

2 Is there domestic violence in your family?

A. Most often B. Sometimes only C. Never

3 Do you feel loved by and bonding with parents?

A. Most often B. Sometimes only C. Never

4 Do you verbally abused at home (labeling, insulting, humiliating)?

A. Most often B. Sometimes only C. Never

5 Do you physically abused at home (slap, bit, pinch, hit etc.)?

A. Most often B. Sometimes only C. Never

Parental monitoring/control	**Most often**	**Sometimes**	**Never**
Ask about my friends			
Supervise my activities in computer or mobile phones			
I need to take permission before going out of home			
Parents visit school and teachers			
My father controls everything I do			
My mother controls everything I do			

7 Do any of the member of your family uses substances?

Family members	**Smoking Tobacco**	**Smkeless tobacco (Surti, Khaini, Pan)**	**Alcohol**	**Marijuana**	**others**
Father					
Mother					
Brother					
Sister					
Grand parent					
Others					

8 Do you have access of devices like cellphone, tablets, laptop etc. to connect with modern mass media (internet)?

A. Yes B. No

9 If yes, do you have access to computers in your bed room?

A. Yes B. No

10 Do you have internet connection available at home?

A. Yes B. No

11 Do anyone of your friends involve in any of the following risk behavior? Please tick all which apply:

A. Smoking
B. Drinking alcohol
C. Marijuana
D. Any licit or illicit drug use
E. Suicidal activity
F. sexual activity

12 Do you have ever pressured to involve in these behaviors by your friend/friends?

A. Yes B. No

13 Result of last annual examination (Percentage/division secured):……..

14 Do you feel that you are not meeting with the expectations of your parents on your academics?

A. Yes B. No

15 Do you feel good about the way teachers treat you?

A. Yes B. No

16 Do you feel you are liked and appreciated by teachers?

A. Yes B. No

17 Does your school has strict rules for monitoring students' activities at school?

A. Yes B. No

18 Does your school has any programs or classes on prevention of risk behavior?

A. Yes B. No

19 Is there good relation between teachers and students in school?

A. Yes B. No

20 Does your school is child and adolescent friendly?

A. Yes B. No

21 During the past 12 months, has anyone offered, sold, or given you an illegal drug or substances at school property?

A. Yes B. No

Social Capital

Instruction: Please indicate how you feel about each statement by tick (√) marking in one of the boxes among the given alternatives.

Family Social Capital	**Often**	**Sometimes**	**Never**
I like spending time with my family, we have good relation			
My parents and I do fun things together			
My family is better than most and I trust my family a lot			
My parents give me time, trust me and listen to me			
My parents respond and try to fulfill my basic needs i.e., provide the materials (academic, play, little pocket money, new/needed clothes)			
I do not feel bored at my home			

School and Neighborhood Social Capital	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
School (trust and reciprocity)					
Students in my school can be trusted					
Students in my school are kind and dependable					
Students in my school help each other					
Students in my school usually try to be helpful					
Students in my school understand each other					
Teacher in my school can be trusted					
Teacher in my school are kind and dependable					
Neighborhood (trust and reciprocity)					
The neighbors can be trusted					
The neighbors are kind and dependable					
The neighbors usually try to be helpful					
The neighbors help each other					
The neighbors get along with each other					

Perceived Social Support Related Information

Instructions: Please read the statements given below and indicate how you feel about each statement by tick (√) marking one of the boxes among the seven alternatives.

SN	Statements	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1	There is a special person who is around when I am in need.							
2	There is a special person with whom I can share joys and sorrows.							
3	My family really tries to help me.							
4	I get the emotional help & support I need from my family.							
5	I have a special person who is a real source of comfort to me.							
6	My friends really try to help me.							
7	I can count on my friends when things go wrong.							
8	I can talk about my problems with my family.							
9	I have friends with whom I can share my joys and sorrows.							
10	There is a special person in my life who cares about my feelings.							
11	My family is willing to help me make decisions.							
12	I can talk about my problems with my friends							

Self-Esteem Related Information

Instructions: Below is a list of statements dealing with your general feelings about yourself. Please tick mark (√) one of the alternatives to indicate how much you agree with each statement.

S.N.	Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	On the whole, I am satisfied with myself.				
2.	At times, I think I am no good at all.				
3.	I feel that I have a number of good qualities.				
4.	I am able to do things as well as most other people.				
5.	I feel I do not have much to be proud of.				
6.	I certainly feel useless at times.				
7.	I feel that I'm a person of worth, at least on an equal plane with others.				
8.	I wish I could have more respect for myself.				
9.	All in all, I am inclined to feel that I am a failure.				
10.	I take a positive attitude toward myself.				

Questions related to Adolescent Risk Behavior

Did you ever try the following?	Yes	No	If Yes	
			age at first try (completed years)	how many days in past 30 days
Carry a weapon such as a knife at school or elsewhere				
Physical fight				
Chewing tobacco such as, paan, gutkha, supari				
Smoking tobacco				
Alcohol				
Marijuana				
Pain killers, sleeping tablets without doctor's advice				
Inject any illegal drug into your body				
Consider attempting suicide (in past 12 months)				
Make a plan or idea about how you would attempt suicide				
Actually, attempt suicide				
Watch sexual material in websites				
Share sexually explicit material in internet, with/by friends				
Sexual activity				

Thank You for Your Great Cooperation!!!

Questionnaire for Parents

Questionnaire on Parents' Knowledge of Adolescents' Self-esteem and their Parenting Practice and Parenting Style

Objective of the questionnaire: To obtain information regarding parents' knowledge about adolescents' self-esteem and their parenting.

Direction: You are requested to express some of your background information, your knowledge and opinion about adolescent's self-esteem and your practice to your adolescent children through this questionnaire. The questionnaire is divided into three parts. First part consists of questions related to socio-demographic characteristics and second the information related to knowledge about adolescents' self-esteem and the third part consists of questions about parenting practice and style. Please put tick mark (√) your answer or write your answer in the space provided.

Code No…… Date:…… Name of the School:…….

Socio-demographic Information

1. Relation with the child: A. Father B. Mother
2. Age in completed years…….
3. Religion:
   A. Hindu B. Buddhist C. Muslim D. Christian
   E. If others (please specify)……
4. Ethnicity/Surname:……
5. Family Type: A. Nuclear B. Joint
6. Educational level you have completed……..
7. Occupation…….
8. How sufficient is your family income to manage daily expenses of family livelihood?
   A. Hardly sufficient B. Sufficient C. Surplus
9. Your family's total monthly income in rupees……..
10. What is your marital status?
    A. Married and staying together with spouse B. Separated/divorced
    C. Widow/Widower

Knowledge Questionnaire

In everyday language we talk about self-esteem. The word self-esteem of children and adolescents is how familiar to you?

Very well ☐ Somehow ☐ Not at all ☐

The following are the statements related to self-esteem of adolescents, please put tick mark (√) on the space which best match with your opinion

Statements related to self-esteem of adolescents	Strongly Agree	Agree	Disagree	Strongly Disagree
1. Adolescence is the period between 10 to 19 years of age				
2. self-esteem is a person's overall sense of self-worth or value				
3. Self-esteem is related to the belief and pride in oneself				
4. Self-esteem is fluctuating during adolescence				
5. Self-esteem can play a significant role in motivation and success for adolescents				
6. Every human has basic needs and self-esteem is amongst them (comes after food, shelter, clothing, love and security need)				
7. Adolescent require respect, recognition and appreciation from others to develop self-esteem				
8. Feeling of proud and confidence are the signs of high self-esteem				
9. Focus on weakness, feeling of failure indicate low self-esteem				
10. Self-esteem is not inborn quality rather develops during developmental period				
11. Parents, family, and others like peers, relatives etc. have a key role to enhance self-esteem of adolescents				
12. Praise, support, good relation between parent and child can increase self-esteem of adolescents				

Questions related to Parenting

Please indicate how you feel about each statement by tick (√) marking in one of the boxes among the four alternatives.

Parenting Practice	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
1. I show respect to my adolescent child				
2. I acknowledge and respect his viewpoints				
3. I become aware of my own attitude and exhibit trust towards my adolescent child				
4. I show some flexibility and room for discussion				
5. I encourage and compliment for the good effort of my child				
6. I express in words that they (child/adolescents) are loved and they are valuable to us not just for their achievements				
7. I try to reward good behavior and focus less on punishment for bad behavior				
8. I appreciate differences in him/herself and others				
9. I try to make him feel proud by praising				
10. I try to maintain good relationship with child				
11. Be realistic, honest and apologize my mistake/bad behavior if any				
12. We usually sit together and maintain open communication with child				
13. I allow to talk my child without interruption and listen him				
14. I try to develop common interests such as sport, movie				
15. Our family has talk and mealtime together				
16. We ask about opinion of child in family decision				
17. Me or my spouse attend school events and meet school, teachers				
18. Notice if the child having any trouble				
19. Support and help the child from my level best				
20. Try to make him feel parents are there to help				
21. We provide materials and environment needed for his academic and other work as possible				

Please indicate how you feel about each statement by tick (√) marking in one of the boxes among the five alternatives.

Parenting style	**All of the time**	**Most of the time**	**Some time**	**Rarely**	**Never**
1. I have little patience to tolerate any disobey and has clear expectations regarding my child's behavior					
2. I strongly believe that my child's future is in my hand and so there is a strict time table for my child to follow					
3. I believe that through punishment a child can be corrected					
4. Whenever my child shows disobedience, I scold and criticize him/her with bursting anger					
5. I behave like a friend, Philosopher and guide to my child					
6. Important decisions of the family are done together and I give full freedom to my child to share his views					
7. I set some appropriate rules for him/her and give friendly corrections whenever necessary.					
8. My child talks with me out of being punished after he/she has done something wrong					
9. Even busy I manage time to visit my child's school & teachers					
10. I sometime threaten my child but do not actually punish him/her					
11. I am very liberal and not strict to my child					
12. As I am very busy, I get less time to involve with my child (studies or to listen his/her needs and wishes)					
13. My child is quite free and I do not have any demand or control on my child					

Thank You for your precious time and information!!!